

ECONOMIC ANALYSIS: AN ISLAMIC PERSPECTIVE - I

Dr. Mabit Ali Al-Jarhi



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MABID ALI AL-JARHI

İç Mizanpaj

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Mavi Ofset

Tel: +90 212 549 25 30

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TKBB Yayınları

Türkiye Katılım Bankaları Birliği

Saray Mh. Dr. Adnan Büyükdeniz Cd. Akofis Park C / Blok

No: 8 K: 8 Ümraniye / İstanbul

Telefon: +90 216 636 95 00 - Faks: +90 216 636 95 49

bilgi@tkbb.org.tr

ASBÜ Yayınları

Ankara Sosyal Bilimler Üniversitesi,

Hükümet Meydanı No: 2, 06050 Ulus / Altındağ /Ankara

bilgi@asbu.edu.tr,

Telefon: +90 312 596 44 44-45,

Faks: +90 312 311 86 00,

PTT kep: asbu@hs01.kep.tr

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MABID ALI AL-JARHI

(PROFESSOR OF ECONOMICS & FINANCE
ANKARA SOSYAL BİLİMLER ÜNİVERSİTESİ)

INTRODUCTION

BEHIND THE IDEA OF THIS BOOK

In the late seventies, I had the honor of meeting and knowing some of the important pioneers of Islamic economics. To remember very few, I can mention¹ Ahmed Elnaggar, Anis Ahmed, Arif Ersoy, Ausaf Ahmed, Eissa Abdu, Khurshid Ahmed, M. Fahim Khan, M. Nejatullah Siddiqi, Mohamed Abdul Mannan, Mohamed Anas Zarqa, Mohamed Sakr, Mohamed Shawqi Al-Fangari, Monzer Kahf, Korkut Uzel, Muhammad Omer Zubair, Muhammad Umar Chapra, Muhammad Uzair, Munawar Iqbal, Sabahattin Zaim, Sultan Abo Ali, Syed Haidar Naqvi, as well as many others. I have met many of them during the First International Conference on Islamic Economics. On this occasion, I presented my article on “the Relative Efficiency of Interest-Free Monetary Economies, the Fiat Money case” (Al-Jarhi, 1976). The nature of the conference and the variety of its attendants did not allow serious discussion of that paper. It rather appeared to be too cryptic and esoteric. By the late seventies, I had already joined the Islamic Development Bank, IsDB, when I struggled for the first time to find about how to apply Islamic finance in realistic situations. I have been influenced by the special relationship I enjoyed with Dr. Ahmed Elnaggar, Dr. Sabahattin Zaim, and the guidance of Dr. Ahmed Mohamed Ali, the former IsDB President.

In 1977, I took a leading role in designing a scheme to finance trade among Muslim countries, using Murabaha as the primary vehicle. At the time, the paid-up capital of the IsDB had been entrusted with conventional banks, as Islamic banks were not available at the time. My idea was to use liquid resources to finance trade among Muslim countries. The first historical deal was between Algeria that imported coke and Turkey exported the same. The agreement set the desired rule and pattern, which later became a basis for the “Islamic Trade Finance Program.” The program gradually evolved into an institution that started as a department and later became an IsDB Group member.

It incident had an imprint on my thinking. In particular, I was confronted by the challenge of showing to some of the top brass of the IsDB that Murabaha is significantly different from interest-based lending. Its being Shari’ah-compliant does not imply that Islamic banks should use a

¹ Alphabetically ordered.

particular contract exclusively out of the 20 available contracts. A more important question that came to my mind was what it meant to prohibit Reba or interest and its rationale. These two issues have taken a central part of my thinking since then. A third related issue still awaits an answer. With a multitude of Islamic modes of finance, should there be an optimum combination at the aggregate level? Would such a combination result from market exchanges, or would it require regulatory interference?

Some of the pioneers I mentioned above were faculty members at King Abdulaziz University in Jeddah. Most of them worked in the *then* International Center for Research in Islamic Economics, which was later renamed to drop the word “international.” My thinking at that time focused on two issues. The first was how to apply the prohibition of Reba. The imposition of a zero rate of interest by any means appeared as a trivial solution. Forcing a zero-bound rate through continuous deflation raised in my mind many issues, which would be taken up later in the book.

The second issue that occupied the center of my thinking has been whether interest-based lending carries some inherent risks and inefficiencies and whether non-interest-based finance would bring some advantages or help avoid the inefficiencies associated with the rate of interest. Fortunately, I found out some crucial aspects of this issue. First, even though perfect-market models mask the disadvantages of the classical loan contract, some economists found sufficient reasons for apprehension. Second, once a serious shift from perfect market models to search models is undertaken, further inefficiencies of conventional finance would appear. Third, I realized that to analyze such an issue would require detailed specification of an Islamic economic system, which I volunteered to do.

My paper (Al-Jarhi, 1981) introduced an Islamic macro model to answer many questions of this kind. Still, it lacked details, and some comments on it sidetracked to side issues, like the system of total versus fractional reserves. Several of my later writings attempted to put more details into the picture. It severe handicap model used the neoclassical Hicksian IS-LM structure (then falsely attributed to Keynes). The use of equilibrium analysis has been coupled with a more realistic setup.

During my work at the Arab Monetary Fund, I led a team from the Arab Fund for Social and Economic Development, the Arab League Economic Department, and OAPEC to compose the Joint Arab Economic Report, JAER. I also participated in presenting to the Council of Arab Governors of Central Banks some options regarding a pan Arab payment settlement scheme. During the preparations and discussions, I sensed some fear in the GCC countries that deficit countries might face difficulties paying the outstanding balances and interest. I offered the idea of using equity-based financial instruments, which is explained later in the book, to avoid delinquencies. The idea was dismissed outright.

The first significant change in my thinking started when I worked in training Islamic banks' employees. I realized then the tendency of mimicking conventional finance was persistent. A new school of thought has been forming from Islamic banks' Shari'ah boards that became increasingly specialized in fishing on Saturdays². Such experience directed my thinking to further questions. First, does Islamic finance have an economic rationale? Second, would Islamic finance's advantages be sufficiently convincing to warrant their honest application? The answer to the first question has been obtained from Al-Jarhi's article on *an economic theory of Islamic finance* (Al-Jarhi, 2017b). The answer to the second question has been taken from an article by the same author on *the Economic theory of the Islamic Finance Regulation* (Al-Jarhi, 2017a).

My teaching Islamic economics to graduate students started with a short Ph.D. course in Iran. It then moved to Qatar and Malaysia. I benefited from my students' discussions and challenging questions in developing and evolving some of this book's central ideas from teaching. During the 11th International Conference of Islamic Economics and finance in

² When the descendants of the children of Prophet Jacob ﷺ, joined Prophet Moses ﷺ out of Egypt, they passed through several tests. The most important to my mind was that fish disappeared from the sea on weekdays, but came in flocks on Saturdays. Meanwhile, they were ordered not to work on Saturdays. The ingenious ancient Arabs developed a ruse in order to fool God. On Fridays, before sunset, they dug deep holes by the shore. On Saturday, while they were sitting home, the tide brought the fish ashore, which fell into the holes. On Sunday, they collected their catch. The Almighty, cursed them for such a naïve ruse, which involves both transgression as well as a miserable attempt to fool their Cherisher. I have had this coined "fishing on Saturdays" to mean ruses that make deeds apparently compliant, while they are not indeed.

2016, I met Steve Keen³ for the first time. I attended his workshop on *debunking economics*, which was held at the IIUM in Kuala Lumpur, through the generosity of my friend Mohamed Aslam Haneef, then the Director of the Center of Islamic Economics at IIUM.

When I started teaching Islamic economics, I used neoclassical economics as an introduction. But later, I realized that this material served little purpose. I thought of teaching the critique of neoclassical economics. However, there had been so much material by many contributors to the literature, which has been sidelined or ignored. It would take another book and probably another lifetime to survey such counter orthodoxy. Meeting Steve Keen and reading his book *Debunking Economics* brought an easy solution. As a start, I initiated teaching his book as a companion to my always expanding lecture notes. Later, when I started the preparations of founding the ASBU International Center of Islamic Economics and Finance (ASBU/ICIEF), I added a course on the critique of neoclassical economics, using Keen's book. It became a prerequisite for my Islamic economics courses.

The summary of many of Steve Keen's surveyed points of the counter orthodoxy found their way to my lecture notes. However, Keen's book became and remained part of the curriculum of any program in Islamic economics that I would teach. I strongly recommend that whoever uses this book as a textbook use Keen's book as a companion, or even better, to teach it in a separate course.

ITS BOOK AND THE THIRD GENERATION

The first generation of Islamic economists has mostly imitated Fiqh in using textual and historical analysis. Some of them even turned into Faqih in both material and style. I can remember Rafic Al-Misri (1984 and 1985). Such a switch encouraged some Faqih to write books on Islamic economics, which boiled down to Fiqh material. The second-generation attempted to use economic tools of analysis but have been overwhelmed with the speed at which neoclassical economics as a discipline has devel-

³ Steve Keen, an old member of the school of radical economists, is a Professor of Economics & Finance at the University of Western Sydney, Australia. In 2010 he won the Revere Award from the *Real World Economics Review*, for being the economist who most cogently warned that the economic crisis that began in 2007 was imminent. He is a staunch critic of mainstream economic thinking, and author of the influential blog www.debtdeflation.com/blogs.

oped, evolved into an almost religious creed, and how the critique of the received doctrine was more or less suppressed. Besides, the second generation mostly lacked sufficient training in neoclassical economics. I concluded that a new generation of Islamic economists is needed with different qualifications. They must simultaneously master conventional economics, neoclassical critique, and Islamic economics. The third generation would establish a useful dialogue between Islamic and conventional economics. Therefore, Islamic economics would be easily integrated into economics' mother discipline.

Many of the serious inadequacies of neoclassical economics have been handled by several economists. The most important contributions of this sort have been documented in Steve Keen (Keen, 2011). Understandably, Islamic economics could be a revolution in the discipline if it resorted to an analytical approach, using economic tools of analysis, rather than textual and historical analysis, both found in Fiqh and the first and second writings generations of Islamic economists. Some economists may wish to join the long line of critics to neoclassical and even neo-Keynesian economics. Some also may wish to reconstruct economic theory itself, provided they stay professional and use serious analysis.

It must be stressed that Islamic economics arises for its reasons, not because of the received doctrine's inadequacies. The Islamic economic system is a market economy with a healthy investment orientation. It added features that mandate the equity side, missing from market capitalism and a more active role of the private sector in providing public services through the grant sector.

Its textbook should be a part of a program for the third generation of Islamic economists, composed of the following:

1. Conventional economists, aspiring to new reconstructions, especially those who exclude perfect competition and include reasons for holding money, like search costs. An orientation towards disequilibrium analysis would be most important, as the idea of an economic system always at a stable equilibrium has been discredited both theoretically and empirically.
2. Those who wish to keep in mind the Critique of neoclassical, Keynesian, and neo-Keynesian economics in detail, maintaining sight of Keynes' valiant attempted a revolution and how the neoclassics led

by John Hicks and later by the Chicago school responded with a counterrevolution.

3. Economists with a healthy dose of Fiqh (Usul Alfiqh, Fiqh Almuamalat, the Islamic creed, and ethics) are also included., critics of Shari'ah board members using ruses in the manner pioneered by ancient (Arab) Jewish scholars but condemned by the Qur'an⁴.
4. Those who prefer analytical Islamic economics as an alternative to the received conventional doctrine would find their goal.
5. Those who perceive Islamic finance as having a strong economic rationale and are concerned with Islamic finance economics can contribute to the discipline.
6. Those interested in a dose of mathematics (linear algebra, real analysis, stochastic and differential calculus, statistics, and quantitative analysis). Besides, those who wish to venture into chaos and complexity theories to handle disequilibrium analysis from an Islamic perspective.
7. Those who wish to test the hypotheses made by Islamic economists using econometrics and experimental economics can be innovation sources.

Specialists would become professional economists with tools and training to carry out an enlightened dialogue with their conventional colleagues. Besides, they can take forward positions in policy-making institutions and cast their shadows on actual decision making. Hopefully, the third generation would contribute to microeconomics following Joan Robinson's example. Their microeconomic analysis would involve money, production, government, frictions, etc. They are also invited to offer an Islamic economic system represented by a macroeconomic model. Troubling conventional concepts, e.g., disequilibrium, aggregate demand, aggregate supply, the theory of the firm, financial market efficiency, and micro-foundations, wait to be handled by Islamic economists.

The Islamic economics response to the received doctrine must avoid slogans and even unreasoned rejection, be it partial or total. Instead, it should provide alternative analyses that produce results and policies.

⁴ A fact that is not often recognized that ancient Jews were linguistically and ethnically Arab. Their fondness of making ruses has influenced the thinking of some Shari'ah scholars in different times.

Its volume can be used in graduate Islamic and conventional economics studies. For such a program, we offer the following ideas:

First: the program should include an excellent but concise survey of the cumulative criticism directed to conventional economics since the early twenties supplemented by teaching Keen's book (2011) and similar writings. Much of it has not yet taken a worthy place in journals or classrooms.

Second: conventional economics is taught in the program concerning the recent (and not so recent) writings that attempt to avoid the received doctrine's inadequacies. The new material minimizes the orientation towards perfect models. Although still rare, new models that successfully escaped the neoclassical framework expose more mainstream economics weaknesses and point to Islamic economics's advantages. However, there is a long way to rebuilding mainstream economics to rid it of the many problems we all know.

Third: teaching analytical Islamic economics should leave most of the textual and historical analysis to religious studies and sticks to the use of economics tools of analysis while emphasizing certain essential aspects.

- Muslims have not spent enough time elaborating on two of the most important pillars of Islam, and through their history, they mostly ignored them. The first is the implementation of intellect or 'aql. A careful reading of the Qur'an indicates that using intellect is a religious duty. Therefore, its protection is mandatory as one of the religious objectives, or *Maqassed*. Some Muslim intellectuals have fallen into the pit of imitation and closing the door to their due diligence or *Ijtihad*. Some schools of thought institute strict imitation. While Muslims are not supposed to innovate in rituals or worship, *Sha'aer, Ebadat*⁵, they are free to innovate in rules or *Shara'e*⁶ related to their daily lives.
- The second is Shura, which means the right of State citizens (Muslims and non-Muslims) to choose their rulers from amongst the most qualified. It has been set aside by the Umayyads and never returned ever since. We can recognize only a few Muslim countries with some Democratic measures, like Turkey, Indone-

⁵ (شعائر، عبادات)

⁶ (شرائع)

sia, Kuwait, Morocco, and Malaysia. Generally, Muslims have fallen under despotism with no right to choose their rulers. Instead, most Muslim rulers claim certain types of *Wilayat* or divine rights to rule,

- Any economic system must be built on a political system. Without political freedom, economic activities become handicapped. That is why, in Islamic economics, it is mandatory to define our political system. In this regard, we need to ignore the debates among Fuqaha' about the divine right of some group to govern and extract the political values embedded in Islam to use as building blocks for our political system. To do so is required for setting the type of property rights, enforcement, economic rights, equity rules, etc. To build Islamic economics in the absence of Shura is as bad as formulating economic theory under the assumption of perfect competition.

Fourth: Religious texts are open to interpretation. Interpreting religious texts related to economic activities by non-economists should be taken as unsatisfactory. Imagine if Jewish scholars interpreting the Torah had some economic knowledge to help understand the rationale behind Reba's prohibition. They probably would not have wasted precious time to develop pronouncements based on ruses to allow Reba. The same thing would apply to Christian scholars. An example from Islamic finance can be presented. Shares Murabaha⁷ is how some Shari'ah board members have ingeniously developed to finance short-term trading in financial assets or speculations that are potentially destabilizing. Critics of conventional economics call this type of finance the *Ponzi Scheme* to emphasize its harmful effects. Lack of understanding of the economic consequences of activities becomes counterproductive. We can, therefore, agree on two essential rules. First, economists must have the upper hand in determining the ultimate consequences of economic actions. Besides, as we economists attempt to draw institutional arrangements, policy rules, and rationalizations to fulfill the Islamic teachings in economics, we must keep in mind that such constructions are only our human product in interpreting the divine laws. Being human, our opinions are subject to discussion and debate and cannot be taken in themselves as divine.

⁷ (مراجعة الأسهم)

Fifth: It calls for looking into a false claim made by some Islamic economists that the Islamic economic system is perfect. Perfection can only be attached to divine rules but not to their interpretation. For example, if one suggested a monetary and financial structure and policy rules, as his/her interpretation of the divine rules, such interpretation, no matter how ingenious, would remain human, subject to discussion, and far removed from being perfect⁸.

To tie a few things together, since divine rules are open to interpretation, and since human intellects perceive things differently, differences of opinions must be admitted. At the social level, an institutional structure for group due diligence or *ijtihad*, through which the society specialists choose a common ground for social affairs, must be instituted. It is about time to register in our mind that Allah's wisdom has been manifest in creating an imperfect man in an imperfect environment (marred, to say the least with scarcity) with peculiar perceptions so that we struggle with ideas before finding suitable arrangements. The perfect God creates people capable of struggling towards perfection in an imperfect world to see how they perform before resurrecting them in ideal form and admitting those who with acceptable performance to His perfect Paradise.

Sixth: In the field of Islamic finance, the program keeps instilling in students' minds the example of fishing on Saturdays that ancient Arab Jews have ingeniously developed as a ruse for which they have been seriously condemned. While the Prophet ﷺ has warned Muslims against imitating such methods or *Sunan*, his warning has been repeatedly ignored by Muslims in the field of economics.

Seventh: Islamic economists have two alternatives. First, they may wish to immerse themselves in criticizing the received doctrine, leaving no energy remaining to present the ideas they consider acceptable in economics. Instead, slogans are repeated about the total rejection of conventional economics and the "*economics of Tawheed*" without spelling out what it is nor providing any economic rationale. Meanwhile, they would remain unequipped sufficiently to have a fruitful dialogue with fellow economists or policymakers who have been understandably suspicious of everything contrary to conventional economics. Second, they can join the

⁸ Take the example of the prohibition of Reba, which is a divine rule. It requires interpretation of how in fulfillment of such rule, money is created and financial resources are allocated.

critics of neoclassical economists in their job of reforming the received doctrine of conventional economics while presenting their analysis, interpretation, and rationale of the divine rules. We have spent so much time already on the first alternative. It is about time to focus on the second.

USING AS TEXTBOOK

It book is not in conventional economics. It is perhaps the first book in economic analysis from an Islamic perspective. Islamic economics shares with radical and non-conventional economists the perception of how faulty neoclassical economics is. The reader will find some wanting summary of critical ideas surveyed by Steve Keen's, which is not a good substitute for Keen's book (2011). We suggest that Keen's book (2011) and Islahi's book (2005) be companions of this book, divided over at least two Islamic economics courses. Alternatively, a course on the critique of neoclassical economics, using Keen's book among other references, and another on the history of economic analysis using Islahi's book, among other material, should be made as prerequisites.

Hopefully, this book would inspire other works that would be augmented later by more material on similar topics. Islamic economists should not mimic neoclassical economics. Equally, it insists repeatedly that an Islamic economic system would be anything but ideal. While the principles upon which the system is based may come from divine sources, whose perfection is assured, it would only be a human interpretation subject to debate and has no claim to perfection. While, and for the sake of argument, we may agree with neoclassical economists that exogenous shocks can cause crises, we are careful to highlight some endogenous sources that would be equally precipitous. Moreover, those who apply it, starting from citizens up to policymakers, are humans whose practices would be far from perfect.

It book comprises two volumes plus an additional volume for review questions and their answers as a teacher's guide. The first volume includes our microeconomic theory of floating disequilibrium, the inadequacies of the interest rate theories, the inefficiencies of an interest-based economic system, and Islamic finance economics. The second volume covers the neoclassical theory of public choice, the political system, and our macroeconomic model and policy issues.

The review questions would hopefully attempt to do two crucial things pedagogically. First, they introduce the chapter ideas in a practical format, which brings the book's ideas much closer to the readers' perception. Second, they test whether the student has understood each idea's subtlety. Hopefully, the review questions would be collected in a test bank with their answers in one book to benefit instructors. A set of slides to help teachers focus on the main ideas could be included later on a special website. Many teachers and students would want more detailed explanations for some ideas. They are encouraged to write and communicate with the author through an assigned webpage.

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CHAPTER I: WHY ISLAMIC ECONOMICS?

Students of neoclassical (currently mainstream) economics will legitimately wonder why Islamic economics when the prevailing discipline appears to be satisfactory and evolving. The then-Fed chairman Bernanke (2004) saw two decades of achievement; he asserted that there had been significant improvements in economic growth and productivity, a marked reduction in economic volatility, both in the US and abroad,

The two decades have been dubbed “the Great Moderation,” during which recessions have become less frequent and milder. Quarter-to-quarter volatility in output and employment has declined significantly. The then chief economist of the OECD, Jean-Philippe Cotis (2007), asserted that the current economic situation was in many ways better than experienced in years. He claimed that leading neoclassical policymakers have stuck to the rebalancing scenario, including a soft landing in the US, a strong and sustained recovery in Europe, a stable trajectory in Japan, and buoyant activity in China and India. He finally declared that sustained growth in OECD economies would be underpinned by strong job creation and falling unemployment. In a self-congratulatory tone, he described the current economic situation in 2007 as being in many ways better than what has been experienced in years\

Neoclassical economics has argued since its inception, even before the Great Depression, that market capitalism⁹ will remain in a state of stable equilibrium, with no need whatsoever for government interference. No economic system has had such a fortune of proponents who advanced a whole discipline to prove its virility as the system of market capitalism that the neoclassics have perceived. Besides, economists seem happy with their social appreciation. As many would agree, economics is a respected, active, and vibrant discipline whose literature encompasses numerous journals, textbooks, and research publications.

⁹ Throughout the book we distinguish between two economic systems that have often been confused. The first is the market economy which is based on economic freedom while open to regulation and safeguards to maintain sustainability, equity and balance. The second is market capitalism which is a market economy, devoutly guarded against measures to maintain sustainability, equity and balance.

Economists are doing well. Some of them are chosen for the honor of being Nobel laureates every year. Many serve in assisting policymakers on policy issues. Some of them even occupy distinguished positions as policymakers, including governors of central banks, ministers of economy or finance, and top leadership in international and regional organizations. Many economists are intellectually influential and play an active role in influencing public opinion. Of course, we must remember that economists enjoy such privileges for belonging to the neoclassical school. Otherwise, they would be shunned away and blocked from public offices and mainstream publication outlets.

Moreover, the system of market capitalism, which has been historically inspiring mainstream economists regarding its working mechanism, appears to be doing well, as claimed by many. All industrial countries have adopted the system while occupying the top rating of per capita income. Countries that adopted different systems, like the Soviet Union and China, converted to varying degrees to market capitalism.

Why then provide a new branch of economics with a different methodology and an institutional economic setup? The reason is simple but multifaceted. The mainstream analysis has fallen into numerous pitfalls that raise serious questions and require serious consideration. Besides, market capitalism, which has been attached to the received doctrine, suffers from serious defects. The identification of pitfalls in economic analysis and market capitalism's shortcomings cannot be credited to Islamic economists per se. Discipline and system critics exist among conventional economists. Their works have been collected and collated for easy reference.

Islamic economics has not arisen in reaction or answer to market capitalism's shortcomings. It has sources of its own that preceded our current and dominant economic system. Such sources started when Muslim intellectuals successfully transferred the ancient Greek anecdotes of home economics into a behavioral discipline of micro and macroeconomics in the eighth century. The largely ignored Al-Shaibani, the forefather of economics, on his initiative, in the eighth century put on our library shelves *Kitab al-Iktisab* (Ch. II). Its developments have followed the intellectual and socio-economic developments within the geography in which Muslims have lived until the fall of the

Ottoman Empire. Its revival is also related to such developments. However, it may have been encouraged and given particular urgency by the current state of dissatisfaction with neoclassical economics and its associated market capitalism.

INTRODUCING ISLAM AND SHARI'AH

Its volume is not a book in religion for divinity students but an economic analysis book for economics students. However, it would be fair to say that both economics and Shari'ah brings to many minds, even some Muslims', irrelevant and distracting concepts. To clarify these concepts, Islam is the religion of submission to God's will. Conveyed to Adam, his wife, and descendants as a way of life to pursue following their training session in the Garden of Eden. The decision to create humanity who, in contrast with angels, are vicegerents of God on earth, with powers and will to construct, destruct, obey and disobey, has been with an understanding to stand accountable on the day of judgment. The same message has taken different names at different times, for circumstantial reasons. *Yahude*, (*allatheena Hadu*, or *those who sought guidance by God*), not to be confused with contemporary Jews, was a term expressing the declaration of the followers of Moses ﷺ that they are committed to submitting to God¹⁰. *Nassara* (not to be confused with contemporary Christians¹¹) is a name that was taken by

¹⁰ The calligraphic icon is an Arabic language sentence of prayer that is customarily used by Muslims following the name of any prophet that God may bless and well receive him, in recognition for his efforts in human guidance.

¹¹ Hopes to find out what the contemporary followers of Eissa (Jesus) ﷺ ought to believe were revived when the Dead Sea Scrolls, purported to be the oldest Biblical manuscripts in existence, were found in caves near Al-Quds in 1947, but then mysteriously kept as a tightly held secret for nearly fifty more years, until the Huntington Library unleashed a storm of controversy in 1991 by releasing alleged copies of the Scrolls (Baigent and Leigh, 1993). Some of these relics have been found fake by the Museum of the Bible in Washington DC (<https://www.bbc.com/news/world-us-canada-51916849>, accessed on 15 May, 2020). Islamic scriptures report that Eissa ﷺ contemporaries believed he was a prophet. Now, only a minority, considered heterodox by the church come close to this. In the fourth century, Arianism, which stressed the prophethood of Jesus, was subjected to persecution by the byzantine in pre-Islamic Egypt. They expectedly converted later to Islam later on. After the Nicaea Council (325), Arianism gave way to Trinitarianism, which has more intellectual and cultural affinity with Greek heritage. The Hellenization of Christianity has many manifestations, including the language of religious texts, names of clergy and

those who declared their support and promised the protection of Jesus Christ ﷺ, Son of Mary and one of the five top prophets, against the pagans of their time. According to Qur'an, Prophet Ibrahiem was reported by the Qur'an as the first to call his followers Muslims (those who submit their will to God), a name that survived circumstantial terminology¹². The term Islam is more inclusive than commonly believed. It denotes all the teachings of God revealed through all prophets, including Musa (Moses) ﷺ, Eissa (Jesus) ﷺ, and Muhammad ﷺ as documented in the Qur'an. Naturally, these messages come from the same God for the same purpose and would not be logical to take different forms.

The literal meaning of Shari'ah refers to the *law*. Laws are usually written for societies through an institutional process. They are meant to organize human activities within specific areas. Shari'ah is a particular type of law that is derived by human beings (usually Shari'ah scholars) from the divine texts of the Qur'an and Hadith as well as the reported Prophet's actions. It is important to note that the holy text reflects a particular creed, which is simply the belief in the existence of a vast and universal God that is unlimited by time, space, form, or biases. The nature of God is described by 99 attributes representing the ultimate excellence in all aspects.

Such creed is unique. Some religions perceive a god in human, animal, or mineral forms. Idolatry mixes between human and mineral forms. Ancient Egyptian household gods included animals, birds, and even insects. Greek gods on Mount Olympus had a strange breed of human and godly attributes. Ancient Arabs' pagan gods were statues of alleged saints who thought to mediate between people and God¹³.

prayers, which are mostly in Greek. It is in contrast with the cultural environment in which Prophet Eissa (Jesus) has lived. He came from an ancient Arabic ascendency, spoke Aramaic and his mother observed Hijab. The current version of the new testament cannot be verified as an honest translation of the God's words. However, nothing credible is available on Arianism as their writings have been burnt by their rivals. Reuters (2009) reported the discovery of an Aramaic manuscript, with antiquity smugglers in 2000 and then kept in Ankara Ethnography Museum, whose date and authenticity have not been verified, which allegedly refers to Jesus as a prophet. The controversy regarding roots of the contemporary Christian creed continues among intellectuals, while ceases as an issue among common Christians.

¹² Sura Alhaj, Verse 78.

¹³ It bears some similarity to Christian, Sufi and Shi'a beliefs.

Some religions perceive God within space and time limitations. Others attach certain biases to God to prefer some of his creation (human or otherwise) to others. All such examples would set such concepts of a God apart from God's concept in Islam. Having accepted that the universe has been created by God, and not by pure chance and that God exists, the concept of God itself becomes a matter of reasoned choice. In other words, God must acquire specific attributes that would logically be acceptable as a manifestation of maximum excellence. Knowing God by his attributes sets some genuineness criteria to Muslims and non-Muslims alike. To the extent that your perception of God is free from such limitations, we can tell whether such perception can be intellectually defensible or based on pure acts of faith.

Shari'ah, then, derived from the sacred text is a human interpretation. Its acceptability depends on its relationship with the holy text. Some of its rules can, therefore, be rejected as misinterpretation. Both derivation and rejection must be reasoned. In this case, the Islamic concept of God and its Shari'ah rules are matters of *reasoned choice*. However, the choice is maintained only to the extent of one's knowledge. Not all Muslims can access the Qur'anic and Sunnah texts in Arabic. Even when accessible, their interpretation requires more understanding of the language, history, and context but does not require being on a priesthood hierarchy.

Based on their knowledge, Muslims can comfortably compare a world where Shari'ah rules are applied to another where they are not. It becomes legitimate for them to assert that the former world offers more advantages than the latter. Such is an intellectual process through which Muslims compete intellectually amongst themselves and non-Muslim intellectuals.

It has been commonly popular that Islam has five pillars. Yet, there are two more pillars we wish to add, as Muslims have generally ignored them. The sixth pillar is intellectual reasoning. The command to use one's intellect can be derived from the Quranic text, as shown in the Appendix to this chapter. A thoughtful reading of the Quran shows that intellect use is a religious duty. There is no urging to rely on mystical or illogical beliefs, as in some other religions. Ibn Rushd has stressed this concept, influenced by his reading in Aristotelian philosophy and his understanding as a Faqih. His scientific approach to ra-

tional thinking was based on deduction and induction. His contemporary Ibn Tufail supported it, who stressed observation and empiricism.

WHAT TO DO ABOUT THE RECEIVED DOCTRINE?

Prevalent criticism of mainstream economics points towards its reconstruction. However, we must leave this job to mainstream economists themselves, as it is dauntingly difficult to handle all the severe inadequacies in the received doctrine and do the proper reconstruction. The reader would realize from Chapter III that the restructuring of conventional economics would be a challenge that requires more than the efforts affordable by only one or a few economists. Regretfully, the time horizon necessary for the results of such reconstruction to bear fruit would be far too extended to justify its urgent undertaking by Islamic economists.

However, the study of Islamic economics would naturally encounter specific important issues whose resolution requires some modification or restructuring of some parts of economic theory. An example would be the theory of interest. As we approach the context of providing an interest-free monetary and financial structure, we must dwell on the validity of the monetary rate of interest theories, whether espoused by the neoclassics as the theory of loanable funds or by Keynes as the theory of liquidity preference.

Since we consider Islamic economics to be a revolution against the received doctrine, as represented by the neoclassical consensus, we find it necessary to define the place of Islamic economics relative to Keynes, who attempted a revolution after the Great Depression. Several points have to be used to set the record. First, Keynes revolution, as important as it has been, did not reach the level of radicalism in Islamic economics, as it did not propose an institutional change but satisfied with the current version of market capitalism. Second, Keynes's analysis resorted to nuances and subtleties, which were later ignored by his followers, who developed Keynesianism as another brand of neoclassical economics. In Islamic economics, we need not be limited to nuances and subtleties. We have a different market economy type as a reference that would guide our analysis away from neoclassical economics.

GAPS IN THE PREVALENT DISCIPLINE & ECONOMIC SYSTEM

I. GAPS IN THE DISCIPLINE

Economics as a social science appears to have established itself, with contemporary economists' contributions around us everywhere. Refereed journals, books, articles in newspapers and magazines, even select TV channels and websites can testify to this. Yet, economists themselves have pointed out several gaps in the discipline. Their efforts appear as manifestations of a dormant revolution buried in the mainstream literature. Digging out such nuggets and putting them together in one stream would expose the extent to which we need to reform the discipline. We have dedicated Chapters VI and VII to present the salient features of the old and the current critique of economics.

The most crucial criticism directed to neoclassical economics, which is usually made in introductory textbooks, is that economics is a value-free science; economists have an agreed-upon methodology. They know which models are best to apply to any given problem. They give the impression that markets are generally sufficiently competitive and (for the most part) lead to efficient outcomes; minimum wages and unions are harmful to workers themselves, and government regulation is either ineffective or harmful.

Naturally, Islamic economics pays close attention to the critics. A survey of their opinions would explain to the reader why it is worth his/her time to learn Islamic economics. Islamic economics itself is a new discipline of economic analysis that revolves around human behavior towards scarcity, with one significantly different aspect: the rules of conduct are drawn from Shari'ah. In other words, Islamic economics is the study of human behavior towards scarcity under the rules of Shari'ah.

II. GAPS IN MARKET CAPITALISM

Based on the market mechanism and different degrees of *laissez-faire*, the current economic system has been the playing field for empirical studies that are used mostly to support the received doctrine and market capitalism. The system itself appears to require a serious overhaul. Some of the following chapters will focus on the role of the classical loan contract in the economy, the nature of transactions made permissible in the system, and how this leads to several systemic defects.

III. WHAT IS REQUIRED FROM AN ALTERNATIVE?

Its place is where we put our wish list with regards to the sought-after discipline of new economics and a new structure for an economic system. The critique of the received doctrine and the defects claimed against the prevalent economic system will guide us to provide an economic analysis that fulfills the economic goals that the neoclassical and other schools of thought have failed to achieve. Hopefully, the proposed new institutional structure would treat the prevalent version of the market economy's inadequacies. However, there is no final word on this subject. Human intellect will continue to strive for further progress on both fronts.

To survey the main objections to the received doctrine, we refer to Steve Keen's book (2011), *debunking economics*, where he elaborated on the significant objection against neoclassical economics. Moreover, Rod Hill and Tony Myatt (2010) attempted to reconstruct microeconomics, *the Economics Anti-Textbook: A Critical Thinker's Guide to Microeconomics*. While Keen debunks all neoclassical economics, Hill and Myatt present neoclassical microeconomics in pieces, each followed by a critical examination. However, in Chapters IX and XI, we present a new microeconomics framework.

If we were to summarize all objections to neoclassical economics in a few words, we could say that neoclassical economics is inherently flawed. It has played a role in producing repeated crises. It creates an understanding among intellectuals and policymakers that promotes economic crises as a regular feature of the system. The latest International Financial Crisis, commonly known as the Great Recession, occurred after the Subprime Bubble, which the Dotcom Bubble had overshadowed. The neoclassical school provides a doctrine that creates a creed that counterfactually denies crises in the market economy, which is supposed to be perpetually stable.

In later chapters, we summarize some evidence that the Great Recession had obvious harbingers. When a crisis eventually occurs, policymakers claim that it was impossible to predict, then temporarily abandon their neoclassical doctrine and rush to other schools of thought to seek solutions, then return to their original beliefs once the crises pass by. The Great Depression had its notable precursors, which

were ignored by neoclassical economics. Many radical reforms had been proposed, to be soon forgotten once the storm has passed.

IV. INFLUENCE OF NEOCLASSICAL ECONOMICS ON ATTITUDE TOWARDS INSTABILITY

Neoclassical economic theory has created a common understanding that a market economy is self-stabilizing. Consequently, there is no need to introduce countermeasures to preempt future crises. As a result, crises, when they come, they are unduly deeper and more serious.

The macroeconomy may show health for few years preceding crises, which would distract attention from the coming catastrophe. (Keen 2001a: 213). Despite its apparent health, the trained eye observers serious warning signals in the economy. However, the neoclassical doctrine encourages ignoring all harbingers.

V. GOVERNMENT INTERFERENCE AND DRAWN OUT RECESSIONS

Minsky (Keen, 1995) argued that *Big Government* would subsidize firms sufficiently to enable them to finance their debt commitments in the face of a collapse in private spending. Like that of the US, big governments' policy interventions tend to attenuate severe crises and keep them sufficiently mild and tolerable. Such countries would face drawn-out recessions like Japan's since its Bubble Economy collapsed in 1990 (Keen 2001a: 256–7).

VI. MACROECONOMICS AND ECONOMIC POLICY

Neoclassical economics has evolved to a state in which no macroeconomic policy is required. For example, the Maastricht Treaty limits budget deficits to under 3 percent of GDP as a condition for membership of the European Union. During a crisis, Europe's governments would force austerity measures upon their economies that need economic stimulus (Keen 2001a: 212–13). Contrary policies lead to more profound crises whose effects resonate with several countries.

VII. THE EFFICIENT MARKET HYPOTHESIS & DEBT-FINANCED SPECULATION

The Efficient Markets Hypothesis (Sharpe, 1964) would have investors believe that the stock market would witness only limited and sparse fluctuations. However, the stock market has been increasingly

volatile (Keen 2001a: 232). Despite such volatility, both traders and specialists in financial markets continue their attempt to find an inherent order in the markets which never existed.

The efficient market hypothesis has encouraged destabilizing speculations by instilling in traders mind the false perception of a stable and predictable stock market. It would eventually lead to economies badly hobbled by debt. When a crisis finally strikes, conventional economists will have to give up their theoretical dogmas in favor of commonsense before providing credible solutions.

VIII. DEREGULATION AND CRISES

Not being the sole cause of financial instability, the financial sector's deregulation contributed to its severity by removing few constraints to cyclical behavior imposed by regulations.

The source of the problem is the finance sector's institutional structure, specifically how financial markets behave like gambling casinos. One of the relevant symptoms is those markets' tendency to allow for sky-high valuations to develop (Keen 2001a: 255–6). It has been common in financial markets to find stocks traded at too high price/return ratios. In other words, the prices of such stocks cannot be justified based on return. Their only justification is the gambling nature of the market in which they are traded. An essential element in encouraging gambling is permitting trade in debt and pure risk, which are often unrelated to real economic activities.

IX. CRISES AND PARADIGM SHIFTS IN ECONOMICS

Attacks on neoclassical economics have been frequent and sometimes painful. Yet, neoclassical economics has been insensitive to such attacks. Some relate such insolence to economics' irrelevance (Keen, 2011). Economics does not have to be as exact as physics. The market economy preceded economics's discipline and will continue regardless of the dominant economic theory's validity. The economy's underlying strength hinders the success of any challenges to the economic orthodoxy.

Policymakers, emboldened by a false confidence in the market economy's stability, have dismantled some institutions that would keep instability within limits. Modern capitalism has become a more impoverished social system: more unequal, fragile, and unstable, thanks to the continuous institutional changes introduced to the sys-

tem as reforms. Sometimes, as in Russia, naive faith in economic theory has led to exceptionally large-scale failures, largely ignored by neoclassical economists.

Crises happened on a global scale, although believed to be impossible by neoclassical economics. Two such incidents occurred in this century. The first was the *Great Depression*. In reaction, Keynes turned economic theory upside down. However, Keynes's insights were rapidly emasculated, as shown by many (Leijonhufvud, 1968), the *Keynesian economics* that became dominant was not the same as the *economics of Keynes*.

The second was the 1970's *stagflation crisis* – with low growth, rising unemployment, and high inflation. It led to the replacement of Keynesian economics with neoclassical economics as a new orthodoxy.

Neoclassical economics has served since its inception as a *surrogate ideology* for market capitalism. Naturally, it would continue to do so until such a system changes to something else. The Great Depression and the Great Recession are examples of serious crises that neoclassical economic theory considers impossible. Naturally, both crises became occasions to direct serious critical attacks on neoclassical economics. However, the proponents of the mainstream doctrine have shown little concern. The lack of apprehension of neoclassical economics stands in the way of learning even from hard lessons. When a particular school of thought is in power, crises are not taken as proofs of wrong analysis but as events to be confronted with sufficient political expediency.

PUBLIC REACTIONS TO THE FAILURE OF NEOCLASSICAL ECONOMICS

Critical economists are increasingly aware of the flaws in conventional economics. Non-orthodox analysis, including Islamic economics, is developing. Neoclassical economics may eventually find itself with no choice but to abandon its usual obsessions. If such a trend continued and became more pronounced, the lines will be much more drawn between orthodoxy and new types of economic analysis. The orthodoxy techniques would lose their attraction to a new generation of economists schooled in new paradigms. A vibrant alternative approach to economic analysis, founded on realism, not idealism, would

show an alternative and offer students of economics a new research program to which they can contribute¹⁴.

An informed and vigilant public is required to use its newly acquired knowledge as a lever in all sorts of ways. In this regard, new curricula would be needed, and new ways of informing policymakers should be developed. Informing the public would also be decisive, but it is a much more significant challenge. The media would not provide the necessary space to expose neoclassical economics. The topics may not earn popularity to deserve publication, as economists are usually not trained to address the public effectively.

I. THE ROLE OF CREDIT AND PRIVATE DEBT

Surprisingly, neoclassical economists ignore the role of credit and private debt in the economy. Like Joe Stiglitz and Paul Krugman, those who do pay any attention do so from the perspective of an economic theory in which money and debt play no intrinsic role, which makes no sense. Yet, that is the theory that has dominated economics for the last half a century. The survival of the market economy hinges upon abandoning such a model.

In a world where debt finance revolves around the rate of interest levied in a compound fashion, debt service becomes a burden on growth in debtors' net worth. When interest compounding is coupled with the possibility of slamming higher penalty rates on the temporary delinquent full unpaid (not just the overdue balances), the total debt required by full settlement becomes somewhat unpredictable. Many factors add to the undesirable consequences of conventional debt. Conventional debt often becomes unsustainable, as the ratio of debt service to current income becomes unbearable, the processes of consumption and saving face interruptions. Debt service takes precedence over the demand for consumers' and producers' goods. The bankruptcy of debtors means total and prompt destruction of their net worth. The economy would have no escape from sinking into recession, even if, as usually happens, the creditors are bailed out, using taxpayers'

¹⁴ Therefore, we warn Islamic economists to avoid idealism and carry out their analysis around realistic assumptions. It is precipitous to consider the Islamic economic system as divine-made and consequently ideal. We will consider this point in more details later in the book.

money. Bailing out creditors, the solution customarily advanced in market capitalism failed during the last international financial crisis and proved ineffective in avoiding recession.

Its series of successive events from debt to doom has not been incorporated into conventional economic analysis. Despite repeated crises caused by such a scenario, economists found it convenient to ignore its analytical side. China's example that started with exceptional growth rates but slipped gradually into less impressive performance should be taken to sign that debt overhang would eventually start making its presence.

II. BETWEEN THE GREAT MODERATION & THE GREAT RECESSION

The *Great Moderation* (the mid-1980s to 2007), which continued for two decades, has been acclaimed as a symbol of neoclassical economics's success. Federal Reserve chairman Ben Bernanke proclaimed such achievement (2004b). It included significant economic growth and productivity improvements, in addition to a noticeable reduction in economic volatility, both in the US and abroad. Jean-Philippe Cotis (2007), the OECD's chief economist, expressed the same confidence and optimism. Then, the Great recession ushered itself suddenly in late 2007. What was impossible and unthinkable to neoclassical economics happened with fanfare: free-fall of asset markets, unceremonious perish of mega-institutions of finance, rising unemployment, and deflation.

Neoclassical economists abandoned at once their policy rules and began acting like *Keynesians*. Budget deficits far exceeded anything Keynesians had ever run in the 1950s and 1960s. The Federal Reserve doubled the monetary base in five months, and Quantitative Easing I pushed the monetary base ratio to GDP, from 6 percent to 15 percent by 2010¹⁵.

¹⁵ The British Queen asked, in a briefing by academics at the London School of Economics on the turmoil of the international markets: "Why did nobody notice it?" The answer was "No One Could Have Seen It Coming." However, Steve Keen and a handful of other unconventional economists had gone publicly warning in the years leading up to the crisis, that a crisis was imminent (Keen, 2011). Dutch academic Dirk Bezemer came up with twelve names of those who gave forewarning: Steve Keen, Dean Baker, Wynne Godley, Fred Harrison, Michael Hudson, Eric Janssen, Jakob Brøchner Madsen and Jens Kjaer Sørensen, Kurt Richebächer, Nouriel Roubini, Peter Schiff, and Robert Shiller (Bezemer 2009: 7).

Prominent neoclassical economists have not justified their sharp turn to extreme Keynesianism during the crisis. Besides, they felt no embarrassment in switching back to business as usual once the crisis passed.

A. NEOLIBERALISM AS A POLITICA CHARIOT OF NEOCLASSIC ECONOMICS

Neoclassical economics had a significant role in causing the international financial crisis and the Great Recession (Palley, 2018). Both are evidenced by neo-liberal policy and financialization, which undermined demand-generating and led to stagnation. Palley (2018) claims that neoliberalism is a political plan to advance the business and the wealthy's interests, who support the Freshwater against Saltwater economics for apparent reasons. The freshwater neoclassical school insists on dynamic macroeconomics with microeconomic foundations, making decisions under uncertainty. It provides ideological support of neoliberal policy and justifies the current institutional arrangements. The dubious division of neoclassical economics gives the wrong impression that economics presents a serious debate between Freshwater and Saltwater economists when both are purely neoclassical.

The saltwater economics branch from Arrow and Debreu's (1954) competitive general equilibrium theory. There are differences in degree regarding the extent and severity of market failures and government capacity to remedy them. As seen in the second volume, Islamic economics rejects general competitive equilibrium. It provides an institutional structure that challenges the aims of interest groups.

III. REVISIONISM

Only two years after the crisis, neoclassical economists came out to defend their theory (Bernanke 2010: 3), providing the best proof that the orthodoxy was hard to die. Bernanke's defense referred to economists' works mostly unfamiliar to neoclassical economists, like Henry Thornton and Walter Bagehot. However, the Neoclassical Counter-Revolution had abolished courses on economic history and the history of economic thought, in which their works would have occasionally featured.

Core neoclassical courses on economics hardly mention financial crises, including Thornton, Bagehot, Keynes, Minsky, Hicks, Clower, Leijonhufvud, and Gurley Davidson, Goodhardt, or even Friedman. According to neoclassical economics, such names do not seem to qualify as part of modern economic theory (Colander 2011: 4–5)¹⁶.

Bernanke defended neoclassical models as suitable for good times. Meanwhile, he had no neoclassical economic models suited for bad times to offer. The reason is simple, as there were not any. The neoclassical synthesis could not generate instability. Capital assets, financing arrangements revolving around banks and money creation, liability constraints, and problems related to uncertainty are all assumed away, seriously limiting the usefulness of neoclassical economics.

Neither the Great recession nor the Great Depression and the many crises in-between could convince neoclassical economics to give up their orthodoxy. Crises, big or small, have not shaken Their faith in their neoclassical model. Several pieces of original research confirm that most concepts taught as gospel in economics textbooks have been proven unsound and false (Keen, 2011). We will provide some examples of this later. Their education has prevented the neoclassical economists from realizing their dogma's falsehood.

Neoclassical economics would instead perceive the market economy in a permanent equilibrium while ignoring the necessary conditions in which original research has shown that none of them holds. They analyze the economy from individual agents' vantage point, like consumers, firms, workers, or investors. Without the aggregation of individual actions to derive a market model, in which many agents interact, or an entire economy where markets interact, their analysis remains limited to individual psychology, as it failed to be generalized over the aggregate. Their textbooks provide a false theory for markets and economies but may be valid only for isolated agents (Keen 2011).

For example, the theory proves that an individual's demand curve is downward-sloping, but the market demand curve cannot be shown as sloping downwards. Textbooks, e.g., Samuelson and Nordhaus (2010: 48), claim the market demand curve is the horizontal sum of individual demand curves. Meanwhile, a leading research book shows that

¹⁶ The core macroeconomic courses has exclusively focused on DSGE *Dynamic Stochastic General Equilibrium modeling*. It is another sign of die-hard orthodoxy.

market demand cannot be so derived (Shafer and Sonnenschein 1982: 671), ignoring the interaction between demanders and suppliers, which would be emergent behavior leading to an aggregate is different from the simple summation.

A peculiar version of mathematics used in economics, taught by economists to economists, is based on methods transcended long ago by professional mathematicians, which deprive economists of new mathematics developments (Keen, 2011).

DOES ECONOMICS MATTER?

The neoclassics beliefs and actions made the Great Recession far greater than it would have been without their interventions. Their theories in finance bred generations of business students believed in two false ideas: first, finance markets invariably price financial assets correctly. Second, the debt was good. Like the Options pricing models and value at risk trade, they developed financial trade tools that Warren Buffett considered weapons of mass financial destruction (McCall, 2015). As regulators, they allowed the finance sector's excesses to go on unchecked, for perhaps two decades longer than would have occurred without their bailouts.

Some claim that the extreme bailout efforts of the Federal Reserve in 1987 have accentuated the stock market crash of that year. Without such bailouts, a milder recession would have been precipitated (Keen, 2011). Similarly, bailouts in the following crises, like the Savings and Loans, the Long-Term Capital Management, and the Dotcom, all encouraged continued speculative excesses, finally leading to the sub-prime crisis and its disastrous effects.

The key indicator that enabled the twelve clairvoyant economists (identified by Bezemer) to have anticipated the crisis is *the ratio of private debt to GDP*. Whenever the Fed and its counterparts in the OECD bailed out the financial sector, that sector continued doing what it best was to create debt. Had the Fed not interfered in 1987, escalating debt would have stopped, forcing the US to deleverage from a debt-to-GDP level of 160 percent. With bailing out the financial sector, the debt ratio approached 300 percent of GDP. Besides, rampant deflation and plunging output drove the debt ratio higher even as Americans drastically reduced the nominal level of debt.

CHAPTER II: THE DAWN OF ECONOMIC ANALYSIS

This chapter reviews some of the old contributions to economic analysis that paved the way for analytical economics and set the main features of an Islamic economic system. The flow of ideas does not introduce a history of economic thought. It only shows the reader that Islamic economics had its roots in the views of several contributors who have set the foundation of the whole discipline of economics and its Islamic branch. Western pioneers' leadership must be reinterpreted as being strictly limited within their own cultural and historical environment. The apparent reason is that they came several centuries after their Muslim forerunners. Moreover, they ignored the significant earlier Muslim intellectuals' contributions in their literature.

According to Jack Reardon, Joseph Schumpeter chose to ignore 500 years between Charlemagne (742-814) and Thomas Aquinas (1225-1277) in his *History of Economic Analysis* (Reardon, 2019; Schumpeter 1954, p. 74). To be exact, Schumpeter ignored the period extending from the eighth century to the fifteenth century, or about 800 years. A review of the Muslim thinking in our field is provided in this chapter and the following one.

THREE GENERATIONS OF ECONOMISTS

As a social science that studies people's behavior towards scarcity under the rules of Shari'ah, Islamic economics has not been developed instantly. The early pioneers of Muslim economists have established the foundations of the discipline itself, without using Islamic economics' nomenclature, as conventional economics played no role in their world. However, they discussed some of the latter's possible features, like Reba. The fall of the Ottoman Empire has been associated with a retreat of Islamic economics that required awakening, followed by two new generations of *modern* Islamic economics. We can identify at least two generations of Islamic economists. The first generation resembles pamphleteers of the mid-eighteenth century. It appeared after World War II and presented simple but thoughtful ideas about Islamic economics. It was then too early to discuss an Islamic economic system's components. Focus had been on the inadequacies of Capitalism and Socialism and the advantages of prohibiting Reba (interest) and im-

plementing Zakah and Awqaf. Generally, they resorted more to Fiqh and historical analysis with no economic analysis. They presented almost a picture of an ideal economy devoid of scarcity and crises.

The second generation appeared in parallel with the First International Conference of Islamic Economics in 1976. It was composed of economists who learned neoclassical economics in Western academia. They attempted to establish Islamic economics as a new technical discipline. However, they have been overshadowed by those trained in Fiqh. The rise of the Islamic finance industry with the dawn of 1975 gave Shari'ah scholars prominence. While they were hardly Islamic economists, they can make bold judgments regarding practicing Islamic finance. The second generation of Islamic economists has continued to present some analysis and to answer some questions that find no answer in the received doctrine. They stuck to the traditional forums used by economists. Occasionally, they were joined by some Shari'ah scholars when the topics of *the economics of Islamic finance* were discussed. Stardom, however, remained with Shari'ah scholars. As they became business consultants, they enjoyed a new prestige, which added boldness to their *Fatawa*; like ancient Arab Jews, they sharpened their skills in making ruses. Many finance products were structured with the pungent smell and flavor of conventional finance while dressed in Islamic garb.

Naturally, the second generation of Islamic economists shared Shari'ah board members in their fondness of ruses. They desperately tried to expose them with limited success. Only in the forums where Islamic economists were heard next to Shari'ah board members did ruses be successfully exposed. In particular, the International Fiqh Academy's decision to prohibit all forms of Tawarruq was a landmark, which did not prevent Shari'ah board members from continuing to espouse the products of ill repute. Conveniently, Shari'ah board members excluded economists from most of their boards. They restricted board membership to a closed circle, blocking Shari'ah scholars in academia, who had a different perception that was devoid of ruses.

Now, the second generation of Islamic economists has some major objectives to accomplish before giving way to the next generations. Most importantly, Islamic economics needs to replace the textual approach with an analytical approach. It requires an ambitious challenge

to the neoclassical consensus. Many theories deep-rooted in the economic analysis must be exposed as failing to explain numerous phenomena. The market economy system has already been replaced by market capitalism with neoclassical propaganda that it has a perennially stable equilibrium. Besides, little dialogue has been taking place between conventional and Islamic economics. To remedy these deficiencies and more, a renovated analytical Islamic economics must be presented to the third generation for further pursuit.

WHAT IS ISLAMIC ECONOMICS?

The discipline of economics studies people's behavior towards scarcity. That includes production, consumption, saving, investment, and trade, both at the individual and the social level.

Similarly, Islamic economics studies people's behavior towards scarcity, including the previously enumerated activities. However, people draw their moral judgments and behavioral rules from Shari'ah. Meanwhile, conventional economics does not explicitly assume that specific values bind people in their behavior. Some of them may have altruistic values. Others may hold selfish values. We also know that the average human being is neither totally selfless nor selfish. However, throughout the economic analysis, we find various assumptions that assume critical value judgments. Taken together would imply an economic agent that is extremely utilitarian, totally fixated on wealth maximization, with an extremely calculative approach that compares changes in costs and benefits of his/her decisions at the margin.

From the very beginning, in Islamic economics, we assume that Islamic values somewhat influence households without implying that such values are strictly or effectively imposed. Such households would be motivated by market mechanisms' consequences without being extremely rational or superhumanly calculative. Our household is neither the *homo economicus* nor the *homo Islamicus*. In this way, economic behavior can be examined under voluntary actions. The explicit and open exposition of moral values in our analysis makes Islamic economics no less *positive science* than conventional economics.

Only when we study the Islamic economic system, we assume that Islam's values bind the public. Such values provide for a balance be-

tween altruism and self-interest, individual and social interests. In addition to such moral values, society is commanded to obey specific transaction rules.

Therefore, we can define Islamic economics as *the discipline that studies people's behavior towards scarcity, including the activities of production, consumption, saving, investment, and trading at both the individual and the social level, without being encumbered by neoclassical moral values of extreme rationality and superhuman calculation*. Islamic economic, moral values are introduced singly or in a group for analytical purposes to clarify whether incentives and safeguards for following the rules of Shari'ah in economics are needed and the efficiency and allocative implications of their presence.

ISLAMIC ECONOMICS AND ISLAMIC FINANCE

Conventional finance, based on the classical loan contract, has been practiced in the ancient world for centuries. Modern banking origin was traced back to Italy in the 12th Century (Chachi, 2005; Orsingher, 1967; Usher, De Roover, 1954, and 1943). Meanwhile, interest-free Islamic finance has started with Islam's dawn, based on several investment and finance contracts. Yet, despite its continued application, it has not taken the form of banking until 1973 (Chachi, 2005).

BIRTH OF ECONOMICS: EARLY MUSLIM SCHOLARS

Abdul Azim Islahi, a distinguished scholar on the history of Islamic economic thought, points out that Muslim scholars' significant contributions to economics tended to be ignored. Historians of economic thought have taken the Greek and Roman legacy as a start, following some early Christian priests before jumping to the middle ages, leaving a gap of five centuries ((Islahi, 2005). The five centuries happened to be the era when Muslim scholars developed economics and other disciplines. Islahi (2005) reports several writers of the first half of the twentieth century who documented Muslim contributions during the intentionally missed gap¹⁷.

¹⁷ Salih (1933), al-Hashimi (1937), Rif'at (1937), Abdul-Qadir (1941) and Nash'at PhD dissertation, (1944). There is no obvious excuse for the five-century gap. Lack of Arabic translation of Muslim works should not have been an impediment to scholars and academic institutions that handled works in many other languages. Muslim

Ghazanfar and Islahi (1990) traced a substantial body of contemporary economics back to Muslim scholastics such as al-Ghazali and others. Ghazanfar (1995) disputed the validity of the great gap thesis. By surveying some major works on the subject, he showed that the literature gap manifests in almost all relevant works in economics.

Islahi (1997) published an English followed by another Arabic bibliography by Nuqli (1998), listing several works appearing in English and Arabic that dealt with the economic ideas of individual Islamic scholars who lived during the ignored period. Such a significant number of writings discredited Western ignoring of Muslim contributions in that period.

Islahi (2005) presents in his book a comprehensive survey of Muslim economic thought right from roughly the first millennium of the Muslim civilization until its zenith by the early 16th century. Islahi (2005) argues that Western mercantilism was only a reaction against Muslim conquests on the battlefield.

PHASES OF KNOWLEDGE TRANSMISSION TO THE WEST

Islahi (2005) divides the history of Muslim economic thought into three phases.

I. THE FORMATION PERIOD

Islahi (2005) argues that the Qur'an provides specific but few economic principles, as it left the details for the application of intellect. He explains that scholars' chain worked on deriving detailed rules to meet their contemporary needs. They automatically created a juristic logic (Usul al-Fiqh). They started with considering the Qur'an, the prophet's ﷺ sayings and practices and the precedents of companions as well as their immediate followers. They applied analogy and other inference rules to deduce the relevant Shari'ah injunctions for novel situations. Gradually, several schools of thought in jurisprudence emerged. The treatment of economic issues was naturally included in the complex of real-life problems.

Students of the leading jurists and other contemporaries came up with their specialized works. Islahi (2005) lists the topics treated by

manuscripts have been abundant in Western coffers and could have been easily accessed.

contributors in this period, including Market and its regulation, supply and demand, price setting, money, credit and credit instruments, interest and commodity exchange, taxation, public finance, fiscal policy, various forms of business organizations, agricultural relations, Zakah, inheritance, property, poverty, and riches. In Islahi's judgment, economic thought in this period was inspired by the internal factors rooted in the basic sources of Islam – the Qur'an and Sunnah as well as Islam's encouraging view towards engagement in economic matters.

II. THE TRANSLATION PERIOD

Islahi (2005) provided the story of translating classics by Muslims. Starting with the first century of Hijrah, foreign classical were translated into Arabic. The influence of translated works began appearing in the third century of Hijrah. Khalid Ibn Yazid (668-704) ordered the start of translating Indian, Persian, Roman, and classical Greek works, but later interrupted by political upheavals. Then, Al-Ma'mun (783-833), the Abbasid Caliph, resumed the translation activities and established '*Bayt al-Hikmah*' as its center. It saved Indian, Persian, and Greek classics from oblivion and facilitated the transfer of ancient ideas worldwide.

By the end of the 9th century, Muslim scholars started producing works inspired by translated classics covering medicine, astronomy, art, philosophy, public finance, and economics. Muslim scholars were divided on imported ideas into three distinct streams. *Traditionalists* or *Muhaddithun* rejected Greek ideas, including al-Kinani, al-Farra, al-Sarakhsi (Islahi, 2005). *Mutakallimun* or scholastics distinguished the useful and conforming to Islamic ideas and the conflicting ideas they attempted to challenge, like al-Mawardi, al-Ghazali, and Fakhr al-Din al-Razi (Islahi, 2005). *Hukama'* or philosophers were deeply influenced by Greek philosophy and attempted to build a common denominator linking them to Islamic teaching, including Ibn Sina, Ibn al-Haytham, Ibn Tufayl, Nasir al-Din al-Tusi (Islahi, 2005), who appeared later in the 11th century.

Muslims extended the branch of Greek philosophy, *oikonomia*, or the science of household management to include markets, prices, money, supply, demand, and hinting at some of the macro-economic concepts of Keynes ((Islahi, 2005, p. 15; Spengler, 1964, p. 304).

III. THE RETRANSLATION AND TRANSMISSION PERIOD

Muslim scientific contributions, as well as their commentaries on Greek philosophy, were rendered into Latin and other European languages, starting with the 4th century of Hijrah ((Islahi, 2005, p. 17; Sezgin, 1984, p. 119) and continued at an increasing rate through the Western renaissance ((Islahi, 2005, p. 19 and Myers, 1964, p. 78).

Translation of the works of Muslim philosophers, physicians, scientists, and social thinkers took precedence, including Ibn Sina, al-Farabi, Ibn Bajjah, Ibn Rushd, and others were translated into Latin, Spanish, French, Hebrew, and German languages. Economic discourses that were part of ethical and philosophical discourses were also translated. Many European students traveled to Iraq, Syria, Egypt, and Andalusia to study under Muslim teachers. Upon their return, they spread their newly acquired knowledge through writing and teaching ((Islahi, 2005, p. 23; Sezgin, 1984, p. 128).

ECONOMICS AND THE POLITICAL SYSTEM

Economics as an intellectual activity and an organized system where actions can be properly made cannot be separated from the political system and its underlying philosophy. Islam as a way of life offers all political, economic, and social systems combined to support a worship system. Therefore, it is necessary to bring out the political side of Islam, which is much maligned and misunderstood.

Islamic political thinking came to take part among four competing paradigms. The first is the Islamic *contractual model*, based on mutual agreement, and subjugates the rulers to the wills of the ruled. The second is the model of *Bedouin politics*, where the Arab tribe always revolts against the concept of state and civil obedience. The third is the *Persian model* of the emperor's divine right to rule. The last is the model of *Greco-Roman democracy*, which is full of livelihood and dynamism. The historical struggle among the four models when the Islamic political system came to exist culminated with the Islamic contractual model dismantled. It has been replaced with the divine right to rule *a la* Persian model. Muslim intellectuals practiced self-censorship, as they avoided writing on the contractual relationship between the ruled and the rulers after the dominance of the Umayyads (661-750). It continued until the tenth century, when rulers later commissioned some of their assistants to write handbooks and guidelines to manage government affairs.

CONTRIBUTIONS BY INDIVIDUALS**I. AL-SHAIBANI (132–189 A.H., 750–804 A. C.)**

Muhammad ibn-al-Hassan Al-Shaibani¹⁸ (132–189 A.H., 750–804 A. C.) deserves to be credited with writing the first book on Microeconomics, under the title of *Kitab al-Iktisab*, or the Book of Earnings, written on his initiative without being commissioned by a government authority. El-Ashker and Wilson (2006) credit him with developing economics as an independent body of literature. Therefore, we will name him as the father of economics, in place with Adam Smith (1723-1790 BC), who has been considered in the West as the father of Western economic thinking. His methodology was mainly a deductive approach.

A. CONSUMPTION

Al-Shaibani associated consumption with earnings and leaned to austerity in consumption. He viewed consumption at three levels: subsistence or necessities that must be fulfilled by divine command, moderation or enhancement, and extravagance or refinement. He viewed the consumer not as an individual but as a household, encompassing husband, wife, and children. He considered clothing and housing as necessities.

In his analysis of consumption, Al-Shaibani considered a utility, claiming it diminishes with extra goods consumed, something like the law of diminishing utility claimed by the neoclassics.

B. PRODUCTION

Al-Shaibani divided the income sources into hiring-out, industry, agriculture, and trade.

Assets Hiring-out

Al-Shaibani considered hiring-out of assets as a separate category of production activity, which influenced the business's financial performance and the value-added statement. His seminal treatment indicated the relationship between *funds sources* and the income generated. Hiring assets impacted business revenue through the rate of return on capital employed. Revenue generated from hiring assets must be considered before calculating the rate of return on capital.

¹⁸ محمد بن الحسن الشيباني

Value-added currently used as a basis for calculating the gross national product, GDP, is composed of: incomes of factors of production, specifically, rent as the reward for, or the cost of, hired means of production. Net profit must be exclusive of all the rent incurred from hiring assets or means of production. The value-added calculus matched Al-Shaibani's classification. As labor is human capital, wages reflect the cost of hired capital Al-Shaibani's classification includes labor by implication, which highlights the contribution of labor to GDP.

Industry

Al-Shaibani considered all production activities as equally important. However, as a source of earnings and a production sector, trade was regarded as superior to any other profession. He emphasized specialization and division of labor to gain skills and improve performance. He related the wide variety of God-given skills of individuals to individuals' performance as the community becomes more integrated. Al-Shaibani's argument, extended to macroeconomics, would establish that specialization speeds up gaining technology and increasing sectoral integration.

Agriculture

Al-Shaibani distinguished himself among his contemporaries by considering agriculture as the most important production activity, based on four reasons. First, production in other sectors depended on agricultural produce. Second, agriculture production was crucial for sustaining life, and, consequently, it was *more widely beneficial* to people than other sectors. Third, agriculture and its derived activities provided other living beings' needs. Fourth, agriculture provided a source for Zakah.

Trade

Al-Shaibani investigated wealth creation and claimed that trade and exchange developed wealth while agriculture provided necessities. Al-Shaibani, therefore, anticipated the Physiocrats' thinking almost ten centuries earlier. Al-Shaibani, in contrast to the Physiocrats, did not claim that agriculture was the only productive sector. Moreover, he acknowledged the exchange value attributed to trade.

C. SUFISM, EDUCATION AND ZAKAH

Al-Shaibani severely criticized those opting for voluntary unemployment, particularly the Sufis, and attacked those who could work

but received charity instead. Education to him helped specialization and division of labor, which helps, in turn, to improve efficiency.

Al-Shaibani emphasized that the wealthy charity donor needs the poor, as the former received a divine reward by fulfilling the religious obligation of giving to the poor. Al-Shaibani reiterated the Islamic principle that the poor had a right to a share in the rich' wealth. He concluded that both the poor and the rich needed each other.

Without a doubt, Al-Shaibani's writing on economics was a notable landmark in developing the subject.

II. AL-ASFHANI (D. 502 A.H./1108 A. C.)

One of the books of Al-Raghib Al-Asfahani (Abu-Al-Qasim Al-Husayn ibn Muhammad ibn Al-Mufddal Al-Raghib Al-Asfahani¹⁹ (d. 502 A.H./1108 A. C.) is entitled: *Al-Thari'ah fi Makarim Al-Shari'ah*, or *Means of Glorious Shari'ah*²⁰ (Al-Asfahani, 2007).

We will summarize Al-Asfahani's ideas in what follows (El-Ashker and Wilson, 2006; Dunia, 1984).

A. HUMAN NEEDS

Al-Asfahani argued that Islam considered man as the center of the universe, making him the pivot upon which economic decisions revolve.

Al-Asfahani considered man a consumer with basic physiological, material, and spiritual needs, satisfying ethical and moral values. Physiological needs included food, clothes, shelter, as well as marriage. The needs ought to be fulfilled, as Al-Asfahani stressed, following Shari'ah. When Shari'ah rules were fulfilled, top spiritual needs are also fulfilled. Spiritual needs included worship, performing religious duties, learning, and acquiring knowledge. Al-Asfahani classified consumption by level, into severe, minimum, desired, abundant, and extravagant. Each level exceeded its precedent in quantity and quality. Al-Asfahani considered extravagance as wasteful and forbidden by God.

B. PRODUCTION

Al-Asfahani perceived three functions of humans: first; economic development, second; worship, and third; acting on earth as the vicege-

¹⁹ أبو القاسم حسين بن محمد بن المفضل الراغب الأصفهاني

²⁰ الذريعة في مكارم الشريعة

rent of God. His economic development definition exceeded the mere provision for physiological needs, “facilitate life and make things accessible,” to make what is available more useful and improve life quality, physically and spiritually.

In writing about production, Al-Asfahani emphasized the importance of labor in production and in affecting the value of goods and services (El-Ashker and Wilson, 2006; Donia, 1984). He stressed that everyone must add to output by at least as the equivalent of his consumption. The excess of any individual's consumption over his/her production was an injustice to society.

He outlined the disadvantages of unemployment to both the unemployed and the whole society and its relationship with inflation, reduction of economic activities, and the standard of living.

He severely criticized the Sufis, who advocated the superiority of worship to work for production, providing evidence against their views from Shari’ah. He considered Voluntary unemployment advocated by Sufis as an injustice to society, calling upon the state to avoid compulsory unemployment.

C. COOPERATION

To Al-Asfahani, cooperation was imperative to fulfill people’s needs. Making bread required the collaboration of several individuals of different abilities. He emphasized that if everyone aimed to be self-sufficient, this might lead to a global malfunction.

D. SPECIALIZATION

Al-Asfahani explained the ideas of specialization and how it should lead to better and more efficient performance. He theorized that people had different abilities, readiness, and preferences towards different jobs and would excel only in their chosen jobs. If forced into other jobs, they would be less efficient. Therefore, training should be customized to their ability, traits, and aspirations.

E. ECONOMIC INTEGRATION

Al-Asfahani, in the context of specialization and cooperation, emphasized that each industry needed another as it either produces goods used by other industries or uses products of other industries or both. Its perception carried the flavor of the input-output relationships.

Unlike Shaibani, Al-Asfahani did not consider agriculture the most important economic activity but considered all activities equally important. He differentiated between economic activities on three bases. First, whether the effort needed was purely physical, intellectual, or a mixture of both. Second, whether its return accrued to a limited group or the whole society, the third is whether the skills required were distinctive or not.

F. WORK MOTIVATION

Al-Asfahani suggested that the drive to work and produce was the fear of the lack of needed goods or poverty. It hinted at the concept of economic goods.

G. MONEY

In his brief discussion of money, Al-Asfahani raised some pertinent points (Donia, 1987). First, he recognized money as an essential part of economic life. Second, he recognized the relationship between the value of money and the availability of goods. Third, he highlighted the role of money as a means of exchange. Third, he pointed out the functional role of money as a means of exchange. Fourth, he detected the relationship between money supply and price increases. Fifth, he attached to money no intrinsic value; it only performed its functions. Finally, Al-Asfahani has influenced the writings of Al-Ghazali, who had high regard for Al-Thari'ah.

III. AL-GHAZALI ON ECONOMICS (450–505 A.H./1058–1111 A. C.)

Abu-Hamid al-Ghazali (450–505 A.H./1058–1111 A. C.) wrote *Ihya' Ulum al-Din*, or the Revival of the Sciences of Religion, in which he dwelt on subjects similar to those handled by Al-Asfahani. Unlike Al-Asfahani, he did not focus on lawful and unlawful but pious and not pious, reflecting his Sufi inclination. Despite that, Al-Ghazali stressed the importance of labor in production.

A. MONEY

He recognized that money had no intrinsic value of its own. He perceived its functions as a means of exchange and as a store of value. He gave a notable example of benefiting from trade between a person who had food but no camel and another camel but no food. Therefore,

between them, “there was the necessity of exchanging these two things and fixation of their value.” He outlined the effect of money supply on the price level.

B. INDUSTRIAL INTEGRATION

Al-Ghazali classified human activities into three categories. The first category included four *core activities* without which the world could not do, viz, agriculture, weaving clothes material, housing construction, and government (to facilitate social peace and harmony). Such Core activities were considered necessary for people’s livelihood.

The second category included the activities helpful to primary activities, like iron-crafts for making tools, machinery, and other implements. The third category included the activities supplementary to the primary activities, like eating, drinking, and making dresses.

C. CONSUMER BEHAVIOR

In parallel to al-Asfahani, al-Ghazali classified consumption into various levels ranging from necessity to extravagance. Necessity fulfillment is a religious duty. Extravagance is forbidden. He proposed a quantitative measurement of each level of consumption.

D. MARKET STRUCTURE & COMPETITION

Al-Ghazali linked market practices with the concept of justice. He called for adherence to fair trade. He condemned hoarding foodstuffs to increase their prices as it causes public harm artificially. However, he did not object to hoarding non-food articles, as he thought it did not harm the public. It reflected his concern with the concept of justice in market activities as applied to both buyers and sellers. Al-Ghazali’s discussion of market conditions has been viewed by El-Ashker and Wilson (2006) as it would ultimately lead to situations reminiscent of perfectly competitive markets²¹.

As to profit maximization, he claimed that “To take less profit is *Ih-san*” but “to take greater profit is not unlawful,” because business is carried out for profit. When buying from a poor man, it is permissible to buy at a higher price as a matter of kindness. Al-Ghazali’s advocating

²¹ It seems as an overstatement. Al-Ghazali called for actions to limit monopolistic behavior and to remedy its effects when social harm would result, but did not call for perfectly competitive markets.

for free markets was combined with consideration for the poor. Its open market with conscience reflects Al-Ghazali's inclination to profit satisfying rather than maximization.

Al-Ghazali did not object to acquiring wealth but only to the extent that it covers one's and his/her dependents' needs. Only what is necessary should be earned, which places people near the low level of wealth. Al-Ghazali stood opposite to Al-Shaibani, who did not restrict wealth accumulation.

IV. THE DAWN OF PUBLIC FINANCE

Early writers on Islamic economics focused on public finance for several factors (El-Ashker and Wilson, 2006). First, the State's expansion under the Umayyads and Abbasids brought about complex problems requiring solutions. Second, agriculture continued to dominate economic activities, which called for ways to obtain government revenues from the agricultural sector. Third, deep interest in government subjects' just treatment motivated some jurists and judges to dwell on the subject. Fourth, the unique nature of taxation as a subject that embraces per se other subjects related to the state economic policies attracted attention. Fifth, the demand on the heads of State heads to investigate topics on public finance and their commissioning authors for this purpose.

While the Rightly Guided Caliphs²² formulated their policies themselves, playing the roles of both statesmen and jurists, the Umayyad and Abbasside head of state attracted jurists and judges to serve as advisors, who later on became foremost intellectuals, writing their theses on public finance (El-Ashker and Wilson, 2006).

The increasing complexity of life forced specialization in Shari'ah and the rise of different schools of thought that opened a vast arena for exercising free-thinking and intellectual growth. It encouraged in parallel handling specialized topics in politics and public finance (El-Ashker and Wilson, 2006).

V. THE DAWN OF POLITICAL SCIENCE: AL-MAWARDI

Abu Al-Hassan Ali Ibn Muhammad Ibn Habib Al-Mawardi (972-1058 A. C.) was the first to be commissioned by rulers to write about

²² It title is used with the first four Caliphs that assumed power after the Prophet ﷺ.

political science, with only a limited mandate. He served as a judge, then as the Chief Justice, and a roving ambassador on special missions (Zahoor, 1997). His contribution to political science and sociology comprises several monumental books. The most famous is *Kitab Al-Ahkam Al-Sultaniyyah*²³, *Qanun Al-Wazarah*²⁴, and *Kitab Nasihat Al-Mulk*²⁵. His books discussed political science principles, focusing on caliphs' functions and duties, cabinet members, and the relationships between the public and government. He was a supporter of the 'Doctrine of Necessity' in political science. He favored a strong caliphate and opposed unlimited powers to local government. He set out clear principles for the head of state and the voters' qualifications.

Al-Mawardi's original works on the development of political science and sociology have been further developed later on by Ibn-Khaldun²⁶, with a more considerable measure of intellectual freedom.

Al-Ahkam had three objectives. First, to help authorities understand the law, to achieve justice. Second, to clarify to legislatures the rules of the Shari'ah so that the statutes they derived stay within the established religious rules. Third, to help jurists and scholars understand the bases of State ordinance and contribute to future directions if necessary (Al-Mawardi, 1985).

Nine of the twenty chapters of *Ahkam* are on the state finance administration. Al-Mawardi started his *Ahkam* with the Imamah of the head of state. He preferred a strong ruler, a ruler with the rightful claim to the political leadership, which may have pleased those in power at the time. He also preferred an unjust but capable ruler to a just but incapa-

²³ كتاب الأحكام السلطانية

²⁴ قانون الوزارة

²⁵ كتاب نصيحة الملك

²⁶ Ibn Khaldun, Abū Zayd 'Abd ar-Raḥmān ibn Muḥammad ibn Khaldūn al-Ḥaḍramī (أبو زيد عبد الرحمن بن محمد بن خلدون الحضرمي); born on 27 May 1332 – died on 17 March 1406. He was a North African Arab historiographer and historian. He is claimed as a forerunner of the modern disciplines of sociology and demography. Also claimed by some Islamic economists to be the father of economics. He is best known for his book, the *Muqaddimah* which influenced 17th-century Ottoman historians like Kâtip Çelebi, Ahmed Cevdet Pasha and Mustafa Naima who used the theories in the book to analyze the growth and decline of the Ottoman Empire.

ble one until a ruler who is both just and decisive can be found. It sounds like a second-best preference (El-Ashker and Wilson, 2006).

Rulers have commissioned Al-Ahkam and Abu-Yusuf's Kitab Al-Kharaj to guide authorities and written by chief judges close to the rulers.

Al-Ahkam had a chapter on Hisbah or market regulation and supervision, which was subsequently developed further after him, by the likes of ibn-Taymiyah. Al-Ahkam was a significant addition to the literature. Even with its similarity with Abu-Yusuf's Kitab Al-Kharaj. It could be viewed as a significant contribution to conforming to Shari'ah concerning public finance.

Al-Mawardi's contribution, which appears to have appeased his contemporary rulers, represented a break in scholars' traditions who usually kept silent on political matters. However, Al-Ahkam did not deal with the unfortunate switch from the *Shura system* based on the contractual relations between the ruled and the rulers. Such a system empowered people to elect their rulers and representatives from a subgroup of candidates with specified qualifications. It has been replaced by monarchy and military rule (as in the presence of a Sultan effectively ruling under a figurehead serving as Caliph). Therefore, the development of Islamic political science independently from current rulers' interests had to wait until later.

THE INSTITUTION OF HISBAH OR MARKET & BUSINESS ORDER

Hisbah has been one of the public functions in the historical Islamic economic system, which aims to enforce the recognized rules in market and business behavior²⁷. In the Fiqh language, it is the enforcement of Islamically ordained, *maruf*, and preventing what is religiously unlawful, *Munkar*. It covers two aspects, *ibadat*, essence and forms of worship, and *Muamalat*, the core and forms of the financial behavior or, in modern terms, *transactions*. We are concerned here with the latter aspect, which would be imposed only on Muslims, while non-Muslims were exempt from it and other Islamic behavioral restrictions.

In the early days of Islam, Hisbah was exercised by the Prophet and then the caliphs. With a larger and more complex state, the task of

²⁷ this is translated by El-Ashker and Wilson (2006) as business governance.

Hisbah was delegated to a specialized agency, as one of the innovations introduced by the Umayyad caliph Hisham ibn Abd al-Malik (105–125 A.H./724–743 AC). Al-Muhtasib was bestowed considerable power and prestige whose powers were equivalent to the Department of Trade and Industry and Central Auditing Office in addition to the British RSPCA²⁸.

Al-Mawardi was the first to write about Hisbah in a chapter of his book al-Ahkam. He followed by the book entitled al-Rutbah fi Talab al-Hisbah²⁹. His contemporary, the chief judge Abu Ya'ala al-Fara³⁰ (988–1066), wrote his *al-Ahkam al-Sultaniyyah* (El-Ashker and Wilson, 2006) with the same arrangement and topics of Al-Mawardi's³¹.

In explaining Hisbah, we focus on Ibn ul-Ukhuwwah's and Ibn Taymiyah's writings³², who were contemporaries.

Ibn-al-Ukhuwwah (d. 729 A.H./1329) is Diya' al-Din Muhammad ibn Muhammad ibn Ahmad al-Qureshi al-Shafi'i³³, known as Ibn al-Ukhuwwah and the author of Ma'alim al-Qurbah. The book is a manual on Hisbah of practical methods of governing the market and business sector while paying attention to the theoretical side.

Ibn Taymiyah (661–728 A.H./1263–1328 A. C.), Taqi al-Din Ahmad ibn Taymiyah, a Hanbali scholar, is the author of al-Hisbah fi al-Islam, or Public Duties in Islam. Some consider it a contribution to Islamic social studies, in which he expounded its theoretical foundation and its socio-economic functions. His central theme was *commanding what is ma'ruf (good; fair; right, and proper) and prohibiting Munkar (evil; unfair; wrong; and improper)*. He calls for a moderate and realistic approach, with great stress on the importance of knowledge, gentleness, patience, forbearance, and generosity of spirit (El-Ashker and Wilson, 2006).

²⁸ Royal Society for the Prevention of Cruelty to Animals

²⁹ الرتبة في طلب الحسبة

³⁰ محمد بن الحسين بن محمد بن خلف بن أحمد بن الفراء، القاضي أبو يعلى البغدادي الحنبلي، المعروف بابن الفراء

³¹ Other authors, dealt with the same topic of Hisbah, including Al-Ghazali in his Ihya' Ulum al-Din, Ibn-Taymiyah in al-Hisbah fi al-Islam, Al-Shayzari in Nihayat al-Rutbah fi Talab al-Hisbah, Ibn-Bassam in another, Nihayat al-Rutbah fi Talab al-Hisbah, Ibn al-Ukhuwwah in Ma'alim al-Qurbah fi Ahkam al-Hisbah.

³² Ibn-Taymiyah studied the theoretical foundation of Hisbah, Ibn-al-Ukhuwwah provided a more detailed examination of the practical problems

³³ ضياء الدين محمد بن محمد بن أحمد بن أبي زيد بن الأخوة، القرشي،

I. AL HISBAH AND IBN TAYMIYAH

According to Ibn Taymiyah, al-Muhtasib is supposed to prevent market imperfections caused by intentional concealment of information or provision of misinformation that may affect the parties' decisions or their judgment in contracting. Contracts made while information is concealed or misinformation is injected to affect either party's decision are rendered void. The Muhtasib must do his best to stop this type of market imperfections and to investigate the claim made by either party to that effect. The Muhtasib must ascertain whether goods had been intercepted before reaching markets and whether deals had been made before either party knows the prevailing market prices. The right to the "option on reaching the market" has generally been established.

Hoarding, particularly of necessities, should be checked. Ibn Taymiyah gave the Muhtasib the authority to force the sellers of necessities to sell their stock for fair value. Consumer and producer protection from arbitrary market manipulation and resulting economic injustice are mandatory through state intervention (El-Ashker and Wilson, 2006).

II. PRICE CONTROLS

Ibn Taymiyah held the opinion that, while price setting is generally not permissible, price-setting by authorities can be justifiable if market powers are artificially concentrated in the hands of some groups, thereby allowing them to raise prices. Otherwise, if prices are high because of a lack of supplies, there would not be price controls. He opposed all forms of monopoly, including oligopoly, as he considered them harmful market manipulation forms. Therefore, he was concerned about preventing the manipulation of market forces through state intervention.

He offered several conditions to limit State intervention in markets to manipulation-prevention cases. First, commodities should be necessities to consumers at large. Second, the sellers refrain from sale in anticipation of low future supply leading to a price increase. Third, monopolistic activities hinder both consumers' and producers' free choice when the commodity is for manufacture. Fourth, the market's manipulation aims to achieve a price higher than the fair value. Fifth, price

control should be used to set fair values for both buyers and sellers. Sixth, the ultimate objective of price control is to remove injustice.

III. PROVISION OF ESSENTIAL SUPPLIES

There is another case where Ibn Taymiyah called for State intervention. When market forces fail to provide the type of goods considered essential to the community, state interference is prescribed. Examples that fall into his concepts of core goods, like those related to farming, weaving, and building. Unless some citizens provide for the production of such necessities, the state must interfere. In this context, he distinguished between collective obligation, *fard kifayah*, shouldered by the capable individuals in the community, and personal responsibility of each individual, *fard 'ayn*. He made the state responsible for providing core products when no individual is willing to do so. The state plays two roles in this regard. First, to encourage people to provide the essential needs voluntarily. Second, when this fails, to see that the able individuals are engaged in the provision of necessities without the exploitation of individuals through paying them fair wages (El-Ashker and Wilson 2016).

According to Ibn Taymiyah, individuals providing such goods should not be allowed to demand more than a fair value from the public, nor should they be paid by them less than their fair value.

CHAPTER III: THE RISE OF ANALYTICAL ISLAMIC ECONOMICS

Ibn Khaldun is one of the great intellectuals of history. Through our modern reading of his *Muqaddimah*, he has been the founder of sociology or the introduction to human history. His ideas on the rise and fall of civilization are good examples of a comprehensive theory of development growth and decay in economics. He should not be considered solely as an economist, as his contributions took a much broader encyclopedic scope. We focus here on his economic contributions.

I. IBN KHALDUN ECONOMICS

Ibn Khaldun, Abd-al-Rahman Abu Zayd ibn Muhammad ibn Muhammad ibn Khaldun³⁴, was born in Tunis in 1332 AC. and died in Cairo in 1406 AC.

A. ECONOMIC INTEGRATION

Ibn Khaldun considered economic integration among agents in the economy as a source of definite economic gains. It is a basis for the division of labor and higher productivity. At the outset, Ibn-Khaldun confirmed the need for economic integration using the example previously made by Al-Asfahani of making a loaf of bread. He assumed that humans are social by instinct, and they will have to cooperate.

B. COMMERCIAL ACTIVITIES BY GOVERNMENT

Ibn-Khaldun's considered government commercial activities harmful to citizens and tax revenues. Governments can coerce sellers to sell cheaply and buyers to buy at high prices. It drains merchants' coffers from cash, leading to liquidity problems and hardship in earning a living. They may have to sell goods they bought from the government at a low price in their need for money, forcing them out of the market.

Besides, State competition with the public may lead to work disincentive and threaten the fiscal structure. As farmers and merchants are forced out of business, tax revenue plummets. The tax revenue loss

³⁴ عبد الرحمن أبو زيد بن محمد بن محمد، ابن خلدون، ولي الدين الحضرمي الإشبيلي

would far exceed the government's gain from its business. Government finances can improve only when tax revenues increase without the government competing with private enterprise. The equitable treatment of and regard for people with property improves their incentive to work, make their capital grow, which ultimately increases tax revenue.

Government competing with business hinders capital accumulation by businessmen due to shrinking profits; the decline in the capital will ultimately ruin the economy.

Damage to the economy can also occur when the state buys commodities from farmers and merchants at a lower price and sells them to the public at a higher price. Ibn Khaldun warned against the government sharing business interest with businessmen. To pay the government a share of their profit, businessmen collide with the government to sell at increased prices to achieve high yields. They may also manage to gain tax and customs exemptions for the government share of the profit.

C. CONSUMPTION, LABOR, AND ECONOMIC DEVELOPMENT

Ibn-Khaldun proposed that consumption positively affected economic development and towns' growth. By inference, a lack of consumption would have the opposite effect³⁵. It analysis combines consumption and saving relationships in a national income framework. It also implies a growth theory. Ibn Khaldun theorized that when the combined labor available in a town produced more than workers' necessities (indicating high productivity), the surplus labor may be directed towards providing luxury goods in the city and exports to other towns.

The town's wealth with surplus labor increases, and workers' welfare improves. Growth in this model is based on the positive relationships between consumption (and perhaps investment) and the rise in labor productivity. Besides, a population increase would prop up growth. Ibn Khaldun contributed to the theories of income determination and growth. In his growth theory, we find that growth is triggered by an increase in productivity, population growth, and exports. His theory of income determination is further sharpened by his postu-

³⁵ It idea is a precursor of Keynes' *paradox of thrift* * (Ahiakpor, 1995).

late that *“Income and expenditure balance each other in every city; if the income is large, the expenditure is large, and vice versa. And if both income and expenditure are large, the inhabitants become more favorably situated, and the city grows.”* (El-Ashker and Wilson 2006)

D. PRICES

Ibn-Khaldun correctly anticipated the price theory, as he proposed that prices were affected by demand and supply. He added that the cost of production would influence supply. He correctly compared equilibrium in the basic goods market with that in the luxury goods market. He expressed the concept of equilibrium as the supply being able to meet the demand. He identified cases with excess supply and excess demand and their consequent influences on prices.

He postulated that the elasticity of demand for basic goods would be low while being high for luxurious goods. But the inferred state of demand elasticity was not to be constant as it was changeable with the state of economic prosperity. High income would lead to increased demand for luxury goods. Of course, it refers to the relationship between income and quantity demanded applied to the case of superior goods. When income rises, demand continues to increase despite higher prices. When both income and substitution effects are combined, we face a state of backward-bending demand. It perhaps can refer to what we will discuss later under neoclassical economics, that the market demand curve may not be negatively sloped³⁶.

E. PRICE OF LABOR

Ibn-Khaldun observed that labor price rises with an increase in economic development for three reasons. First, higher economic development enables labor to acquire higher skills in producing luxury goods. Second, labor preferences are tilted towards leisure, so laborers work for shorter hours in more affluent societies than in less affluent communities. Third, the demand for luxury goods would be higher because of higher incomes.

³⁶ Ibn Khaldun was able to provide all this analysis and correctly, without using the neoclassical assumptions that are considered unrealistic, which opened the orthodoxy to criticism.

F. IBN KHALDUN'S EQUATION & KEYNES

Ibn-Khaldun distinguished between *rizq*, which God provided, such as the rain used in irrigation, and *Kasb*, which is what man earns with his effort and work by combining what God has provided. *Kasb* comprises livelihood or basic needs, luxuries, and capital accumulation, from the surplus of *Kasb* above basic needs. *Kasb* is therefore synonymous with earnings, equal to consumption and saving. In modern terms, *Ibn-Khaldun's equation* has income equals consumption plus saving. It has been recast in conventional economics as *Keynes' equation*.

G. LABOR AND VALUE

At the outset, Ibn Khaldun theorized that a part of the value of goods would come from labor. He pointed out that some goods have a more extensive labor content in their values than others. It does not imply that he had a labor theory of value, as he stressed that price is determined by supply and demand, where supply is related to the cost of production. Also, labor is one of the components but not the only part of the value.

Ibn-Khaldun stressed the importance of occupational training and acquiring knowledge. He advised that changes in occupation during one's lifetime prevent mastering the skill needed, indirectly referring to the advantages of division of labor.

Ibn Khaldun defined trade as using capital to acquire an inventory of goods to be sold later at a higher price in local or export markets. Higher prices can happen in local markets due to market fluctuations or credit sales. Therefore, Ibn Khaldun has anticipated the economic concepts to be known later in the nineteenth century regarding profit, comparative advantage, credit sale, and commodities' time value. Moreover, Ibn Khaldun introduced the profit margin concept by cost-plus pricing. He explained that the profit might be small in relation to capital, but it becomes large as capital increases. It has the flavor of distinguishing between the internal rate of return on capital and the net present value methods in investment appraisal (El-Ashker and Wilson, 2006).

H. BUSINESS AND FINANCIAL RISK

Some of the business and financial risks identified by Ibn-Khaldun include Physical risk or merchandise deterioration. These bad debts

cause missed opportunities to profit, moral hazard, Loss of profit, or capital.

Based on such risks, Ibn-Khaldun proposed a list of qualities needed for being a successful merchant. Such qualities highlight the importance of a sound financial control system and adequate legal services for business success.

I. INTEGRATING IBN KHALDUN IDEAS

Ibn Khaldun discovered several fundamental concepts early before Western economists. Examples include the division of labor, the labor theory of value, the theory of population, and the government's economic role (Boulakia, 1971). His contributions attracted numerous modern economists. Ibn Khaldun used his discovered concepts to build a coherent dynamic system that includes long-term fluctuations. Ibn Khaldun's contributions have been echoed by modern economists, sociologists, historians, and philosophers. He certainly qualifies as perhaps the only father of analytical economics.

CONTRIBUTIONS BY SUBJECTS: MICROECONOMICS

A. MARGINAL UTILITY.

The ninth-century economists were aware of the price depends on demand and supply. The relationship between demand and utility surfaced in their writings. Imam Shafi`i was quoted comparing the value of one dinar to the poor with one dinar to the rich ((Islahi, 2005, p. 26). It even alluded to interpersonal utility comparison. Al-Shaybani (1986, p. 50) that eating on a full stomach brings disutility. Ibn al-Jawzi best describes the subjective nature of utility (1962, p. 302) explained that the amount of pleasure from food and drink depended on the strength of thirst and hunger, indicating that utility is subjective while diminishing with consumption.

B. COST OF PRODUCTION

Combining the statements of Ibn Taymiyyah (1963; Vol. 30, p. 87 and vol. 29, p.20) indicates that he credited value creation due to all factors of production. It implied a cost of production theory of value ((Islahi, 2005).

C. LABOR THEORY OF VALUE

Based on several quotations from Ibn Khaldun (1967, Vol. 2, p. 272), Baeck (1994, p. 116) and Islahi (2005) insist that he offered a labor theory of value.

D. DEMAND, SUPPLY, AND PRICES.

Al-Kasani quotes imam Shafi' to have said that the price of commodity changes according to people's willingness to acquire the commodity (demand) and availability (al-Kasani, undated Vol. 2, p. 16).

Other writers indicated the dependence of prices of agricultural products on changes in their supply, which depended on climate. Others stressed that prices do not depend on supply alone, as demand forces play their role.

Qadi Abd al-Jabbar (1965, Vol. II, p. 55) enumerated some of the demand and supply relationships and distinguished between the changes resulting from market forces and those resulting from interventions to block the market mechanism. Al-Juwayni (1950, p. 367). Al-Juwayni's disciple, al-Ghazali (undated, Vol. 3, p. 227), discussed the role of markets based on demand and supply forces in determining prices and profits. He argued that trade adds value to commodities by making them available at times and places they require. Furthermore, the 'mutuality of exchange' required specialization and division of labor. He explained how profit-motivated intermediaries or traders existed. While he was aware of market forces, he did not explicitly mention demand and supply.

Demand and supply functions were explicitly but briefly recognized by al-Dimashqi (1977, pp. 29-30). He argued that they determined a median or just price (*al-qimat al-Mutawassitah*) while calling for maintaining stable median prices.

In contrast, Ibn Taymiyyah provided a vivid and detailed explanation of demand and supply and how they determine prices. (Ibn Taymiyyah, 1963, Vol. 8, p. 583). Ibn Khaldun later introduced other determinants of supply and demand and their influence on prices. As to demand, he emphasized the purchasing power at the community level, tastes (Ibn Khaldun, 1967, pp. 276-78). As to supply, he emphasized production and procurement costs (ibid., pp. 339-40, 341), profit expectations (ibid., pp. 301-02, 351-52, 367), etc. he also discussed the role of prices (ibid., 340-01). He was careful to provide supporting evi-

dence from different countries blending theoretical with applied economics.

E. PRICE CONTROLS

Early Muslim scholars discussed market mechanisms in search of justice for market participants and policy measures to balance their interests. Price control policies were proposed at the time of the Prophet ﷺ which he rejected. Such policies became a debated issue in Fiqh literature (Islahi 1988, pp. 94-97). Al-Maqdisi (1972, Vol. 4, pp. 44-45) opposed price controls. He discussed their disadvantages, arguing that they would be self-defeating because some suppliers would not offer their commodities at the controlled prices, resulting in more shortages, leading consumers to bid up prices.

Ibn Taymiyyah interpreted the Muslim idea of the price of the equivalent' (qimat al-mithl) or 'just price' (qimat al-'adl) as the price determined by the competitive market forces (Islahi, 1988, p. 83). Under such conditions, price controls are justified.

Yahya Ibn Umar al-Kinani, an earlier precedent of Ibn Taymiyyah, similarly objected to price control, price war, and cut-throat competition (Islahi, 2005, p. 32).

Ibn Taymiyyah (1976, p. 42) argued that the Prophet ﷺ rejected price controls for conditions were then unfavorable. Meanwhile, he claimed that the Prophet ﷺ agreed to set prices at the "just price."

CONTRIBUTION BY TOPIC: PRODUCTION AND DISTRIBUTION

I. PRODUCTION

Muslims held a high view of production activities. Al-Ghazali divides industries into primary, secondary, and tertiary, which refer to agriculture, manufacturing, and services, respectively (al-Ghazali, Vol. 1, pp. 12-13, 1964, pp. 328-29).

II. INDUSTRIES LINKAGES AND SPECIALIZATION

Linkages between industries were underlined by Al-Shaybani (1980, p. 75), Al-Ghazali (undated, Vol. 4, p. 12), and al-Dimashqi (1977, p. 21). Specialization came as a natural consequence of linkages.

Al-Ghazali (undated, Vol. 4, p. 118, 119) provides examples of a loaf of bread and a needle to illustrate industrial linkages.

Ibn Khaldun underlines the importance of specialization in several places of *Muqaddam* ((Islahi, 2005, p. 39) while stressing that it is limited by the extent of the market (Spengler, 1964, pp. 295-96).

III. FUNCTIONAL DISTRIBUTION

A. PROFIT

Profit is left by Muslim scholars to be determined by market forces under fair practices. As to *abnormal* profit, Al-Ghazali suggests a prophet-limit of 5 to 10 percent of the goods' price, indicating that a small profit increases sales volume (al-Ghazali, undated, Vol. 2, p. 80). Ibn Taymiyyah favored moderate profit (1976, p. 37), considering abnormal profit as *ghabn fahish* or a form of taking advantage of uninformed customers (1963, Vol. 25, p. 299). He also objected to price discrimination to maximize profit (ibid., pp. 300, 361). Al-Ghazali (al-Ghazali, undated, Vol. 4, pp. 118) and Ibn Qudamah (Ibn Qudamah, 1972, Vol. 5, p.141) justified profit by the element of risk born by entrepreneurs. While dealing with the partnership business, Muslim jurists have extensively written about the costs deducted from the gross revenue to determine the net profit.

B. WAGES

Early Muslim scholars considered labor a service carrying a market price, left into normal market forces. Ibn Taymiyyah and others entertained the idea of just wages. He used the concept of the *wage of the equivalent* (*ujrat al-mithl*) (Ibn Taymiyyah, 1976, p. 34). He argued the wage could be set at the equivalent as in price controls (Ibn Taymiyyah, 1976, p. 34) to prevent employers and employees from exploiting each other.

Ibn Khaldun claimed that it is usually demand rather than supply that determines wages that cover the 'necessities of life' at the least, often fail to do so in villages and hamlets where demand for labor is negligible (Spengler, 1964, p. 298).

C. RENT

Ibn Khaldun came closest to Ricardo in how real estate forms an 'unearned income' for its owner (Ibn Khaldun, 1967, Vol. 2, p. 284). He argued that interior Spain inhabitants enjoyed differential rent, thanks to having fertile land and a good location.

IV. MONEY AND INTEREST

A. MONEY

At a time when the paper had not yet been invented, Umar, the second Caliph, intended to issue money in pieces of camel hide. Fearing that would lead to the camels' extinction (al-Baladhuri, 1983, p. 456), he refrained. Imam Ibn Hanbal is reported to have said that it would be permissible that people would choose whatever they wish to use as money (Ibn Qudamah, 1972, Vol. 4, p. 176). Ibn Battutah (1968, p. 618) reported in his travels that the Chinese used paper money in transactions. But Muslim scholars did not pursue the study of fiat money. However, they discussed the nature and functions of money within a bimetallic standard, bad money, and currency debasement.

According to Qudamah ibn Jafar (Islahi, 2005, p. 47), money has been invented out of a need to support specialization due to the difficulties of barter exchange. It also played the role of a common denominator. The suitability of gold and silver as money has also been emphasized by some, including al Ghazali (undated, Vol. 4, p. 92) and Ibn Khaldun (1967, Vol. 2, pp. 274, 285). Miskawayh (undated, p. 110) argued that money measures commodities' value and establishes equality (relative prices) between them as the medium of exchange. He considered gold as the ultimate standard and a store of value (Miskawayh, 1964, p. 29).

Difficulties of barter and the functioning of money as a medium of exchange, a unit of account and a store of value, have been elaborated by al-Ghazali (undated, Vol. 4, pp. 114-15) and al-Dimashqi (1977, p. 2). Al-Ghazali's exposition is similar to modern exposition (Islahi, 2001, pp.2-4).

Ibn Rushd's underlined the function of a medium of exchange (Grice-Hutchinson, 1978, p. 70). In a comment on al-Dawwani's views on money. Al-Dawwani argued that money served as a common denominator between producers of unlike goods, facilitating their exchange (Spengler, 1964, p. 281)

B. DEBASEMENT, INFLATION AND QUANTITY THEORY

Al-Nawawi argued for the government monopoly of producing money (al-Nawawi, undated, Vol. 6, p. 10), as privately issued money would be open to counterfeit and diminished quality. Al-Ghazali claimed it was unjust to counterfeit money (al-Ghazali, undated, Vol.

2, p. 73). Nonetheless, he allowed mixed metals (token money) to be issued by the state. Ibn Taymiyyah's time was characterized by debasement, leading him to insist on the equality of the intrinsic value of money with its exchange value. When the intrinsic value is lower, inflation would be inevitable. He opined that the cost of minting should be borne by the government and not added to coins' value. He discussed the relation between the quantity of money, the total volume of transactions, and the price level. Ibn al-Qayyim has elaborated this point (1955, Vol. 2, p. 134).

C. GRESHAM'S LAW

Ibn Taymiyyah and al-Maqrizi looked into what has been known in the last century as Gresham's phenomenon in addition to inflation and other effects of currency debasement and counterfeit. Such a phenomenon results from having two monies of the same face value but two different intrinsic values or contents of the precious metal in circulation. They correctly concluded what Gresham claimed centuries later that the bad money drives the good money out of circulation. (Ibn Taymiyyah, 1963, Vol. 29, p. 469; and Al-Maqrizi, 1956, p. 71).

D. INTEREST

Muslim scholars paid attention to the adverse effects on interest-based lending (Ibn Taymiyyah, 1963, Vol. 29, pp. 419, 455; al-Razi, 1938, Vol. 5, p. 92). They refused to distinguish between consumption and production loans. The imaginary time value of money is not acceptable in Islam. They considered the possibility of investing borrowed money as a matter of conjecture, that does not justify charging interest on loans (*ibid.*). We will treat this matter more deeply in later chapters.

The alternatives of borrowing encompass partnership in profit and product and sale finance. Partnerships involve sharing in product or profit in predetermined ratios. Loss is born by the capital owner while the working partner bears the loss of labor (Ibn Taymiyyah, 1963, Vol. 30, pp. 78, 84, 108-09). Only in cases of the worker's contract violation or negligence can he be held responsible (*ibid.*, p. 88). Sale finance provides commodities against deferred payment or pays for them against their deferred delivery.

E. BARTER RIBA

Interest in barter might involve exchanges of the same commodity of unequal qualities or delivery time. The relative values of such commodities are not determined by the market mechanism. Any margin of error in favor of one party would be Reba. It is referred to by *riba'l-fadl* (quantity or quality differential) and *riba'l-nasi'ah* (delivery time). Grice-Hutchinson praises Ibn Asim's contribution to dealing with this subject. Instead of exchanging unequal amounts of the same commodities (but dissimilar in quality or delivery time), each trader ought to sell what it has on hand for money and use it to buy what it desires in quality or delivery time.

Al-Ghazali argues that barter Reba interferes with the functions of money (undated, Vol. 4, pp. 192-93). Ibn al-Qayyim (1955, Vol. 2, p. 138) thinks it directs people to use money instead of barter exchange. Ibn Rushd argued that such prohibition safeguards against cheating in barter with the absence of standardization (Ibn Rushd, 1988, Vol. 2, p.135).

ECONOMIC THOUGHT AND CRISES

Crises have been an inspiration for intellectual revolutions in economics, where the received doctrine becomes overwhelmed and forced to take a back seat to new ideas. A case in point is Keynes's revolution in reaction to the Great Depression of 1929. Similarly, Egypt faced a severe economic crisis in the 15th century that motivated new intellectual strands. Islahi, a prominent contemporary Islamic economic historian, documents two influential Islamic economists' opinions during the same period. Fifteenth-century Egypt saw repeated outbreaks of plague associated with higher food prices and the shortage of irrigation water. Hunger coupled with repeated epidemics forced a population decline, leading to demographic crises. Depopulation (estimated to range between one to- to two-thirds of the population) was associated with decreased economic productivity. Monetary mismanagements have characterized this period of Mamluk history. Mamluk rulers used debasement and unrestricted money expansion to meet the deficit in their spending. In short, this period had a mixture of natural crises in the form of severe-shortage of Nile water, as well as monetary mismanagement in an environment where bimetallism has been corrupted with debasement and coinage of non-precious metals. Unexpected in-

flation became rampant, and its distorting effects spread widely in the economy.

We can identify two schools of thought during this period, a monetarist school pioneered by Al-Maqrizi and a wholistic school led by Al-Asadi.

I. AL-MAQRIZI MONETARY THEORY

Al-Maqrizi has written his basic treatise on money in his book: *Ighathat al-Umma bi-Kashf al-Ghumma* in the year 1405³⁷, followed by further elaborations in *Shudhur al-'Uqud fi Thikr al-Nuqud* or *al-Nuqud al-Islamiyya*³⁸. He noted that government budget deficits were met by debasement of currency and issue of copper money, coupled with extravagance and misappropriation of the public treasure. Al-Maqrizi main theme of the book was rising prices (al-ghala' الغلاء) and economic fluctuations of the early 15th century, which he attributed to the wrong political, economic, and monetary policies of the Mamluk sultan. He criticized the excessive coinage of copper, the cessation of gold and silver coinage, and the adoption in 1403 a non-gold unit of account. He believed that the Egyptian ruler deliberately stopped the minting of silver.

Al-Maqrizi distinguished between two historical incidences of inflation. The first was driven by famine and starvation caused by a natural disaster, such as a shortage of rain, Nile failure to bring in seasonal flooding, and the spread of plagues. He claimed that price controls could surmount such a crisis. The second, which occurred during his time, was due to policy errors.

Al-Maqrizi related his contemporary crisis to three main factors—political, economic, and monetary instability. In particular, currency debasement and the unrestricted supply of copper coins were the primary financial instability elements. Perhaps the most important of all these three factors was the last one, which he deemed most extensively. Based on his analysis, he advocated the reform of the monetary structure.

³⁷ إغاثة الأمة بكشف الغمة

³⁸ شذور العقود في ذكر النقود، أو النفود الإسلامية

Al-Maqrizi claimed that the unrestricted expansion of copper money resulted in high inflation. Implicit in his work, there is an idea of the relationship between the quantity of money and prices. He advocated the return to gold coins. He considered gold and silver as real and natural money. His treatise included early evidence of what is currently known as the dinarist school in modern Islamic Economics. In his writings, money income and real income are distinguished. He emphasized that the fixed income group is hit the hardest during inflation.

Al-Maqrizi considered the deterioration of the monetary system as the single most important cause of Egypt's economic and financial difficulties. He proposed to return to gold and silver standard and limit copper coinage to petty transactions or small denominations.

II. AL-ASADI WHOLISTIC PROGNOSIS

The mid-15th century economic crisis was accompanied by sharp inflation that continued for four years. Muhammad Ibn Khalil al-Asadi³⁹(854 – 1450) in Syria, a contemporary of Al-Maqrizi, classified the factors behind the economic and financial crises into socio-economic factors and monetary factors. The socioeconomic factors included neglect of agriculture, political disturbances, oppression of farmers, and bribery in government, in addition to coercion, tyranny, oppression, and heavy custom duties levied on foreign trade. The monetary factors included a flawed currency system that stood behind inflation. In addition to the monetary aspect, he identified malpractices of Hisbah, lack of standard weights and measures, hoarding, and monopoly. He proposed the correction of weights and measures, monetary reform, rationing of foodstuffs, and increased production as policy solutions.

Al-Asadi used a bread-standard for measuring inflation, i.e., a basket of one commodity. He recommended returning to gold and silver coins and limiting Copper coins to small denominations. He called for proper handling of the non-monetary factors.

CONCLUSIONS

Schumpeter's gap is a myth. It is only an indication of his incomplete investigation or denial. Muslim economists have established the

³⁹ محمد بن خليل الأسدي

intellectual foundations of economics as we know at present by the fifteenth century. What contributions that followed built on these foundations, without any acknowledgment. As in mathematics, philosophy, physics, astronomy, medicine, chemistry, and other sciences, Muslim economists have done an admirable job in handing economic analysis foundations to humanity. All that remained was placing credit where credit was due.

CHAPTER IV: ISLAMIC ECONOMICS AND THE FIRST INTERNATIONAL CONFERENCE, 1976

Pioneering attempts in the early seventies have been made by some students of economics in the USA who gathered under the name of the "American Social Scientists Association." It served to increase the awareness of Muslim social science students of the need to develop the discipline of Islamic economics. It inspired a few Ph.D. dissertations about some topics related to the subject. Professional economists entered the field using the economic methodology. Awareness that Islamic economics was a branch of economics increased with more professional writings. The salient features of Islamic economics methodology started to form. Following the scientific method pioneered by Ibn Rushd, Islamic economists began to look at the economic methodology critically.

The gathering in Makkah AlMukarramah in the first international conference on Islamic economics has been a landmark. The conference gathered various intellectuals from Fiqh, economics, and other related fields. While the final results, published in two volumes of proceedings, appear now to be modest, they carried an intellectual influence that inspired much of the later efforts to develop the discipline. From this conference, formal conceptualizations of basic ideas have been developed, which we review below.

ATTEMPTS TO DEFINE ISLAMIC ECONOMICS

Having started by defining economics as a science, Sakr (1980) proceeded to investigate conventional economics for common ground. In conventional economics, embedded ethical values can be compared with parallel moral values in Islamic economics. The role of the state should be based on: optimum allocation of resources, directing public expenditures for public benefits, state surveillance of market operations, controlling prices only when necessary, fighting monopoly and promoting competition, protecting workers, and ensuring justice and equal opportunity.

Al-Fangari (1981) distinguished between the unchangeable, *Islamic Economic Approach*, based on Qur'an and Sunnah, and the adaptable, *Islamic Economic System*.

Mannan's textbook *Islamic Economics: Theory and Practice* (1970) covers almost all aspects of the economics of Islam, including some comparisons with capitalist economics (Khan, 1983). It represented a step forward, however modest, towards analytical Islamic economics.

ISLAMIC ECONOMICS ETHICS

The Islamic economic system has embedded ethical values whose roots dig deep into Islamic philosophy. It is therefore impossible to construct a value-neutral Islamic economic system or discipline. Naqvi (1981) observes that Islamic ethical philosophy is based on four main axioms: unity, Equilibrium, or social harmony, Free Will, and Responsibility. However, he calls for the "collectivization" and redistribution of private property as a means to reach social justice. He seems to be alone in this proposal, with no support from Fiqh or contemporary Islamic economists. Also, Naqvi believed in the neoclassical doctrine that the rate of interest, as a price, enhances efficiency. He takes an opposite view of ours in this respect. It will be explained later in more detail.

CONSUMER BEHAVIOR

Early pioneers in Islamic economics, like Al-Shaibani (132–189 A.H., 750–804 A. C.), Al-Ghazali (450–505 A.H./1058–1111 A. C.) as well as Al-Shatibi after them (d. 1396), discussed the theory of consumption and the behavior of consumers in a competent economic manner, (Al-Shaibani, Al-Ghazali, 1937, Al-Shatibi, 1997, and Al-Raysuni, 2013). They were by no means marginalists. They considered consumption theory with three aims: to acquire a Shari'ah-compliant basket of consumption goods, to provide guidelines on how to reach such a basket, and to determine the state responsibility in providing for the consumption needs of the poor. A consumption function within Islamic economics underlines three aspects consuming what is only permissible, in moderation, and the state guarantee of necessities to the poor through Zakah.

Contributions to the theory of consumers' behavior after the First International Conference indicated new energy in using economic analysis to handle topics from an Islamic economics vantage point. Al-Zarqa (1980) introduced the concept of consumer behavior's social function. According to Al-Zarqa, consumption had a social function

that maximized God's reward in seeking satisfaction of goods and services consumed. It would take place at three levels: necessities that incorporates all that is needed to fulfill Maqassad al-Shari'ah: protection of religion, life, intellect, offspring (marriage), and wealth. Conveniences included all commodities that are not vital to the fulfillment of the five Maqassad. Refinements included commodities that complement, brighten or adorn life (Zarqa, 1980). Zakah has also been discussed consumption as playing a religious and social role in shaping the consumer's social function.

Kahf focused on the concept of *falah*, or success, as an objective in consumer behavior (Kahf, 1980). The idea of *falah* implied success both in this life and hereafter. Postulating that consumers maximized utilities in both worlds, he concluded that the application of Zakah led consumers to have a higher rate of savings than in other systems. Investment became an integral part of the saving decision; Zakah implementation would help maintain national wealth in the economy. It raised the poor's disposable income, leading to a higher level of aggregate demand and aggregate output. It enabled the Islamic economic system to secure more extensive growth and development resources than other systems. The Islamic economic system mobilizes non-active resources. Finally, it provides the state with a useful information tool through the administration of Zakah (Kahf, 1980).

In his Islamic perspective of the theory of consumer behavior, Khan focuses on the role of *Muslaha*, or social welfare, in shaping the consumer's behavior (Khan, 1992). He distinguished between *wants* and *needs*. He argues that consumers are motivated by needs, not wants. A set of human needs in an Islamic economic system that should be fulfilled first before wants may be considered, and some needs may be more important than others. Muslaha can be used to determine whether a good or service is a want or a need: if the commodities' production increases social welfare or muslaha, it is a need and may be produced and consumed. Otherwise, it is a want that can wait until all needs are satisfied. Reiterating Al-Shatibi, Khan defines needs as the protection of five Maqassad. Khan stresses that muslaha considers what is good for social welfare, while utility focuses on what is good for individual consumers in determining their priorities for consumption.

On the one hand, the differences between altruism and socio-economic analysis and the Islamic analysis of consumer behavior have been of concern for other writers. El-Ashker stresses the aspects of similarities and differences between the two theories (El-Ashker, 1983). Both Western socio-economists and Islamic economists have criticized conventional economists. They have been charged with neglecting ethical values in their economic analysis in general and in consumer behavior in particular. Such criticism is not entirely well-founded as the analysis of altruism has been considered, e.g., by Collard (1978). Socio-economists criticism focuses on the degree of emphasis rather than on the complete omission. However, the behavioral assumptions in conventional economics have been criticized by Western socio-economists who advocate more emphasis on the consumer's social responsibility, with considerable regard to the surrounding community's interest. Instead, they suggest a social image where the consumer is regarded as a *homoeconomicus-humanus* (Nitsch, 1982). Some went even further to suggest linking economic issues with social ethics from Christian thought or "some equivalent set of teaching such as in Islam" (McKee, 1982). Socio-economists and Islamic economists, it seems, agree on one thing: the inclusion of the social responsibility of the consumer to the surrounding community in the analysis of consumer behavior. Despite the acknowledgment of this similarity, both groups of economists, Western socio-economists and Islamic economists, differ on the following (El-Ashker, 1983 and 1985):

(1) Western socio-economists have a set of ethical values that are not necessarily religious; Islamic economists have a set of religious beliefs based on the Islamic doctrine.

(2) Western socio-economists do not have a specific methodology for the consumer to follow (individuals are free about the pattern of consumption concerning their ethical values). Islamic economists have a particular methodology laid down in Islam.

(3) The objectives of consumers in the Western socio-economics are twofold: the satisfaction from commodity consumption and moral satisfaction. Meanwhile, Islamic economics's goals are threefold—the fulfillment of commodity consumption, moral satisfaction, and the satisfaction from a divine reward in their lifetime and thereafter.

Criticism may be directed at the Islamic theory of consumer behavior that it might be too idealistic. How much of Islamic ideals are observed by consumers in their spending patterns is a question that requires empirical research, but such work is scarce. In one of the few research papers, El-Ashker investigates Muslim consumers' behavior and the environment's effect in a non-Islamic country, Scotland (El-Ashker, 1985). The study's general findings support the theory but reject some assertions. The results were as follows:

a. Social-caring spending occupies the second-highest priority of the respondents' spending after meeting basic needs. It is in line with what the theoretical analysis maintains.

b. The effect of the environment is evident in the study as buying cars for own transport and electrical appliances occupy a high priority in the scale of preference. However, environmental concern depends on the pricing of energy from different sources, taxes, and subsidies.

c. Most savings are loaned to fund users in conventional banks and not invested as El-Ashker claims. Savings in Islamic banks are supposed to be invested, not loaned. However, there is a significant gap in applying Islamic finance that results in a high degree of convergence between the two systems, rendering Islamic finance less efficient in channeling savings to investment as its paradigm would indicate. We will consider this point later. It is but a preliminary study. Further empirical studies are still required to link practice with theory.

INSURANCE

Insurance has been of interest to Islamic economists and Shari'ah scholars for two main reasons: its novelty and its role as a tool of risk management. First, insurance in its modern form or dimension is a new phenomenon that requires a ruling on its permissibility or developing an *Islamic version*. Second, insurance has become an essential tool for risk management. It created a lively debate among scholars regarding both permissibility and form.

The disagreement seems to pivot around the form of implementing insurance rather than on insurance itself. Al-Zarqa (Senior) allows all insurance forms (Zarqa, 1980). Mutual insurance, known to early Muslims and cooperative insurance, are acceptable to Al-Zarqa and other Fuqaha'. Such types of insurance are not for profit but for loss

allocation among contributors to the insurance fund. Fuqaha' disagree on insurance companies' commercial insurance permissibility, which uses actuarial analysis to calculate the premiums to allow themselves a profit margin.

While Al-Zarqa (Senior) accepts commercial insurance (1980.), others, including Hassan, reject it (Hassan, 1980), claiming it suffers from ambiguity and uncertainty as to the value of damage and the premium, which should be exclusively earmarked for covering damages, and not for profitmaking. Such ambiguity and uncertainty cause injustice to the insured.

ECONOMIC COOPERATION AMONG MUSLIM COUNTRIES

The last half of the twentieth century witnessed the rise of economic blocks, particularly in Europe, North and South America, and Africa. Economic integration has taken a broader scope after establishing the European Union. It inspired some Islamic economists to dwell on the same subject. There is a variation of methods and differences of emphasis, however. Yusri (1985) suggested an integrated Islamic cooperative system that aims at the elimination of economic dependence on non-Islamic economic communities, which can be based on the following principles:

- 1.- Introduction of economic diversification,
- 2.- Multinational investment ventures,
- 3.- Promotion of Islamic banks and financial institutions,
- 4.- the formation of customs unions among Muslim countries,
- 5.- Avoidance of membership in organizations that ignore Islamic economic principles,
- 6.- Economic policy coordination among Muslim countries and encouragement of intra-trade and intra-investment,
- 7.- The application of principles of brotherhood among individuals to Muslim countries.

Zaki (1980) focuses on Muslim countries' economic challenges in the context of economic cooperation. They include misallocation of resources, maldistribution of incomes and wealth, single-product economy, scarcity of factors of production, obsolete technology, lack of rational economic policies, and policy coordination among Muslim countries. Zaki proceeded to propose the familiar solutions.

Despite the establishment of the Islamic Development Bank Group, *IsDB Group*, many of the challenges still linger. Besides, intra-regional trade among the OIC countries is still minimal. Enabling conditions for establishing a currency union (Wilson, 2004), particularly those proposed by Mundell (1961) and McKinnon (1963) for optimum currency unions to be successful, are not present.

INDEXATION

Unexpected inflation redistributes wealth between debtors and creditors and could disrupt ongoing business arrangements. Contributors to the subject of indexation attempted to handle both aspects. Business contracts can include arrangements to manage the effects of inflation. But the case of lending is a more complicated issue. The redistribution of wealth among debtors and creditors mainly arises when a lender provides an interest-free loan or *Qard Hassan*. In case it does not occur in Islamic finance within business dealings, it is usually made on a PLS basis. It arises in the context of charity or long-term commitment, as in delayed dowry. The continuous inflation would significantly reduce the real value of debt. Additionally, the inclination to borrowers compensating lenders is not justifiable, as inflation is caused mostly by government policies. Meanwhile, compensation would turn the transaction into *Reba*, as present money would be provided against future money plus a premium.

Medieval Muslim jurists were not unanimous (Isaa, 1993). Some insisted that borrowers pay back the same amount of borrowed money to avoid *Reba*. Others proposed that borrowers pay back the *real value* of borrowed money to maintain the real value of money as a store of value. A third group insisted on no compensation in insignificant changes in real value but allowed compensation in other cases.

Hassanuzzaman (1985), Iqbal (1987), and Mannan (1981) support indexation; they and Isaa (1993) are in favor of compensation. The issue of indexation was discussed by the OIC International Fiqh Academy, IFA. Its Resolution No. 75(6/8) of 1993 allowed the indexation of wages and salaries to the cost of living. Moreover, the OIC-IFA, in its resolution No. 115(9/12), dated issued for the year 2000, allowed at the time of writing the finance contract, to set the deferred price in any currency of commodity agreed by the contracting parties. Meanwhile,

indexing the debt to any standard has been disallowed. The same resolution added renal of long-term lease contracts to debt of deferred prices to be set in commodities or currencies of choice.

ECONOMIC DEVELOPMENT

Islamic economists agree that Islamic economics is value-based, and so is economic development. Khurshid Ahmad (1980) contribution is frequently cited on the subject. Ahmad calls for a departure from the approaches of capitalism and socialism. A major thrust of development is a human life to make it purposeful and value-oriented. In this regard, he offers two main premises: development in an Islamic framework and Islamic development economics derived from Qur'an and Sunnah.

He offers bases of Islamic economic development Tawhid (unity and vastness of God), divine arrangements for nourishment, sustenance, and directing things towards their perfection, Khilafah or man being God's vicegerent on earth, and Tazkiyah, or purification plus growth. Like al-Ghaza (1994), he called for comprehensive and moral-, spiritual-, and material-encompassing economic development. Al-Ghazali perceived economic development as a multi-dimensional balancing quantity and quality. The balance also included optimal resource utilization, fair use, and distribution. He also advocated human relationships based on Justice.

Ahmad proposes development policies aiming at Human resource development, production expansion that provides necessities, defense requirements, and better quality of life. Its latter objective should include job creation, social security, equitable distribution of wealth, balanced development, and new technology. Generally, dependency on the outside world should be reduced, and Muslim countries' integration strengthened.

Donia (1979) concludes that Islam can provide a practical and integrated approach to economic development that keeps other systems' benefits and avoids their pitfalls. The evidence of this conclusion is multifaceted. First, Islamic economic development must be governed by justice, equality, goodness, and rightfulness. It is the joint responsibility of both the state and individuals collectively. Second, to work is a duty. Third, commitments must be disposed of with the utmost effi-

ciency. Fourth, the state should facilitate providing knowledge, science, and information, with a strong emphasis on the relationship between science and its application. Fifth, private property, public property, and dual ownership must play their roles. Sixth, both public and private resources must be mobilized for economic development financing. Seventh, rational economic planning must be used. Eighth, a just distribution of wealth must be maintained.

An example of the pre-First International conference traditional writers who were jurists, not an economist was Al-Sadr. His group was generalists who used Fiqh methodology and provided no economic analysis. Some of the generalizations provided by this group would not stand rigorous financial inspection.

Mohamed Baqir al-Sadr⁴⁰ (1968) main concern was economic development, which was a topic that would be handy to generalists. Much of his book *Iqtessaduna* was strong criticism of Marxism, concluding that it is self-contradictory in its philosophy⁴¹. He perceived Capitalism as advocating a free market, without providing the individuals with the economic means to act in a freely economic manner. Restricted market freedom could lead only to illusionary economic freedom. Al-Sadr's critique of Marxism may be a reaction in the late sixties when totalitarian regimes in some Muslim countries were based on Marxist thinking.

He used historical analysis to show that capitalism was suited for European society. By an equal measure, it is not suited to spur economic development in a Muslim community. Economic analysis would show that an Islamic economic system would be better for Europe, yet to be discovered. Al-Sadr also emphasized the Muslim man's role in the Islamic economic system in general and economic development. Moreover, he stated that both the Islamic economic system and an Islamic, not just Muslim, society are inseparable. He rejected secularization and socialism as ways to reach economic development.

Al-Sadr looked for the sources of value and whether labor is the source of value. He evaluated the neoclassical concept of value and

⁴⁰ محمد باقر بن حيدر بن إسماعيل الصدر

⁴¹ *Iqtessaduna*, the second edition extends to just over 700 pages, Marxism gets 200 pages, capitalism, 40 pages, and the rest, about 460 pages, are devoted to Islamic economics.

whether it is just. He emphasized the role of all factors of production in assessing the legitimacy of profit. He highlighted the underlying moral values of the Islamic economic system. He claimed three pillars for the Islamic economic system: dual ownership, conditional economic freedom, and social justice. He argued that land ownership must be made conditional upon keeping it productive. In case of neglect or inability to cultivate the land, the government may transfer its usufruct to someone else to cultivate, in return for a due share to the owner. However, the title is to be transferred only through sale, inheritance, or other means

Al-Sadr, like most jurists, stands for economic freedom, provided that economic agents follow the Islamic ethical code of conduct. Simultaneously, the government maintains the right to make violators accountable under the Shari'ah rules. He stressed the particular importance of labor and equity through the collection and disbursement of Zakah.

CONCLUSIONS

The first International Conference of Islamic Economics served to mobilize contributions in Islamic economics. However, there was an apparent mix between Islamic economics as a discipline on the one hand and the Islamic economic system on the other hand. Besides, it served as a sieve to separate professional economists' contributions and those of generalists. It was pronounced in the published proceedings, printed in two volumes, one in Arabic and another in English. Despite the wide-scale of the conference, the number of contributions that were found publishable was limited. Nonetheless, the Conference gave a forward push to the second generation of professional Islamic economists, who dominated the publications in 1976.

CHAPTER V: THE NEOCLASSICAL VERSUS ISLAMIC ECONOMICS METHODOLOGY

Theorizing often starts with simplification. Simplification implies an incomplete specification of reality against a broader vision that recognizes the complete picture and keeps in mind that the specification used in theory is used to make the analysis more manageable. However, simplification should have limits to keep it *sufficiently close to reality*. Otherwise, the results of the analysis would not apply to the intended reality but to something else that even may not exist. The F-Twist or Friedman's instrumentalism (Friedman, 1958) claims that assumptions do not matter, as long as a theory can correctly predict cannot possibly be true, when our model's specification turns to be contrary to reality.

It chapter looks into the causes behind the received neoclassical doctrine's failure that resonated through theoretical and empirical results. The most devastating academic failure was that after building up a theory for the individual demand curve on utilitarian marginalist analysis, we find that we cannot aggregate the individual into a market demand curve with all the mathematical paraphernalia. In this respect, the Sonnenschein-Mantel-Debreu conditions provide an impossibility theory facing the market demand curve. Besides, it discredits the alleged micro-foundations of macroeconomics.

Empirical failure has been the apparent manifestation of economic crises, starting with the Great Depression of 1929 and ending before the Great Recession of 2008. Many turn on and off in-between. When this is taken against the neoclassical claim of stable equilibrium in the capitalist economy, we conclude that empirical observations fail to support the doctrine. Our interest here is not to discredit neoclassical economics. Its school of thought has offered economists intellectual training, which would remain one of the distinguishing characteristics of the discipline itself. Our real purpose is to see which way Islamic economics should take. Islamic economics can build its theories on the same assumptions. It would unavoidably lead to the same pitfalls. Alternatively, Islamic economics must found its theories on assumptions that do not abridge reality so much, promising to establish another intellectual bridge with more acceptable conclusions. In particular, the

road to Islamic economics should not be full of impossibility theories that vary between ditches and canyons.

The reader is forewarned that our fundamental question in this chapter is not to scandalize the received doctrine but to choose a better analytical road for Islamic economics. The *raison d'être* of Islamic economics does not lie in neoclassical economics's failure. Such *raison d'être* is found on the Islamic commandments, or shall we say Maqassed al-Shari'ah, related to economics. The methodology we choose is a matter of both opinion and expectations. As a start, we judge that our assumption abridge reality less than the others. We expect to reach conclusions that better relate to facts than others. It is the challenge, which is by far a significant one.

CHAPRA'S VIEW ON THE CONVENTIONAL PARADIGM

Chapra (1996) describes conventional economics's paradigm based on three pillars. The first is the rational economic man he interprets as an individual with unhindered freedom to pursue his/her self-interest in maximizing utility and wealth, independently of its impact on others. Such an emphasis on the pursuit of self-interest had a social stigma attached to it because of its apparent conflict with the prevalent social vision. Besides, casual empiricism shows that people generally pursue many objectives that cannot be assumed *prima facie* as predominantly selfish. Conventional economics ignores the possible conflict between self and social interest by assuming an inevitable harmony between both. It is an apparent claim that *the unintended consequences of uncoordinated selfishness result in the most efficient exploitation of scarce resources in the satisfaction of wants* (Rosenberg, 1992, p.219)

The second pillar is *positivism*, which Chapra interprets as economics being *entirely neutral between ends* or *Wert Freiheit*⁴². It takes no ethical position, nor does it make normative judgments towards economic agents' actions. Individual preferences are taken as given. Under this pillar, economists' primary task is to describe, analyze, and predict without passing any judgment about what *ought to be*.

However, economic analysis is based on assumptions that betray strong moral judgments. Assumptions related to how households behave towards scarcity, how firms act in setting their output, and prices

⁴² freedom from value judgments.

all reflect individual moral judgments. The structure of government, markets, and how social choices are made imply strong value judgments. While it may have been a good idea to construct economics as a value-free science, such an ideal is hardly attainable. The apparent reason is that economics is not physical but social science.

The concept of positivism can be rehabilitated to allow for moral judgments while finding the rationale of the adopted moral values. It would incorporate values into our paradigm without losing commitment to the scientific approach. However, some religions would not accept subjecting their beliefs to logic. While in some religions, even the concept of God defies logic, Qur'an is known to have argued many fundamental beliefs, including God's existence, His unity, universality, vastness, and other attributes. Additionally, readers of the Qur'an are challenged to use their intellects to think, compare, and evaluate. It is interpreted that implementing one's intellect is a religious obligation.

Therefore, we can replace positivism in Islamic economics with normative positivism. The rationalization of ideas and concepts is made through deduction and induction. They remain attached to moral values. Therefore, moral values must be explicitly included in the analysis and subjected to the same process. It would not deprive Islamic economics of analyzing the impact of social values and institutions on the allocation and distribution of resources, about which Chapra (1996) was apprehensive⁴³.

According to Chapra, the third pillar of conventional economics is that the economy left to itself will automatically attain Pareto optimality. Government interference would eventually cause distortions and inefficiency. Therefore, market forces should be trusted to bring in efficiency and equity. It is perhaps the strongest justification of the market economy, which claims it ideal. It is always in a state of stable equilibrium, as any disturbance would be self-correcting. Excess demands would create automatic forces that would increase prices until excess demands are eliminated. The opposite is true with excess supplies.

⁴³ We will have examples later when we explain the rationale of some basic concepts in Islamic economics, like the prohibition of debt and pure risk trade, the imposition of Zakah and the like.

Despite the Great Depression and the Keynesian revolution, hostility towards big government economic roles has brought back false belief in the market mechanism. The return to the neoclassical model has become intertwined with the concept of minimum government.

As we will see later when we review neoclassical economics, the concept of a self-correcting economy is too farfetched. It is based on trivial aggregation from individual behavior to social behavior, without counting the interaction among individuals and microeconomic units. Such aggregation falsehood is manifested when one spectator in a stadium stands up; he/she can see the playground more and even better. But when several do the same, they would ultimately see less.

SOURCES OF FAILURE OF NEOCLASSICAL METHODOLOGY

I. PERCEPTION OF RATIONAL BEHAVIOR

A central aspect of the neoclassical household is that it is presumably rational, i.e., calculative, equating marginal benefit with marginal cost. However, we would be more likely to encounter households in real life that apply reasonable choices among alternatives: without rigorous calculus.

According to Blaug, 1992, the common meaning of rationality is:

“acting with good reasons and with as much information as possible or, in somewhat more formal terms, consistently applying adequate means to achieve well-specified ends.”

Its meaning indicates a highly calculating nature of the unit of analysis. Such a person digs out *all necessary information* that is possibly available, compares, and evaluates *all possible options* to arrive at a decision finally.

For an economist, rationality means choosing under a preference ordering with specific, well-defined properties, under conditions of perfect and costlessly available information.

II. PROPERTIES OF PREFERENCE ORDERING

Assume three alternative consumption goods x and y and z , all belong to the set of consumption commodities X , and each lies within the consumer's budget constraint. A choice of x over y , written as $x \geq y$, indicates x is at least as good as y . Since x and y may be equally good from the perspective of this consumer, x is at least as good as y means that "the consumer likes x at least as much as he/she likes y ."

The Neoclassics advanced several assumptions about preferences' properties to facilitate representing preferences by a utility function. Their assumptions may appear acceptable with a small number of alternatives. However, further scrutiny would show otherwise.

Some basic properties of preference relations:

\geq on X is complete, if either $x \geq y$ or $y \geq x; y \in X$ (1)

\geq on X is transitive, if either $x \geq z$ imply $x \geq z$; for any $x, y, z \in X$

\geq on X is rational, if it is complete and transitive (2)

Rationality based on the above preference ordering requires extreme calculation. The completeness of the preference order requires the household to define its preference ordering for all available goods, whether they are within its budget constraint or not. Transitivity requires a high degree of consistency in household preference ordering. Non-satiation requires the household to never tire out from more plenty. Finally, convexity ensures well-behaved utility curves.

Mark Blaug (1997) reject the postulate of rationality. Others, e.g., Alchian (1964) and Friedman (1953), propose a Darwinian survival mechanism to rationalize profit maximization. Blaug (1997) proposes one of three alternative research agendas. He suggests something similar to the "prospect theory" of Tversky and Kahneman (1987). A second alternative would be a non-expected utility theory of decision making under uncertainty. A third alternative is Simon's satisficing theory (Loasby, 1989), which might be described as a non-fully-rational theory of individual action under both certainty and uncertainty.

Some propose redefining rationality to include altruistic behavior or restricting it to the behavior in the market place (Siddiqui, 2001). However, if rationality must be redefined, it is better to use a more suitable terminology. Restricting rational behavior to the market place begs the question of how people would behave outside the market.

It is perhaps more realistic to postulate that each person aims to reach a satisfactory level of whatever objective he/she seeks, be it profit, utility, etc. The satisfactory level would be flexible enough to include the extent of self-interest, altruism, and information about the possible attainable limits. Such meanings can be included in what we term satisficing, which can reflect absolute self-interest, absolute altruism, concern for others' welfare, concern for the environment, etc. The moral

values guide that the agent believes and seeks to follow. Herbert Simon (1957) calls *bounded rationality* (Iqbal, 2012) to measure moral values.

Therefore, we can say that Islamic economists are in good company when rejecting the postulate of rationality. As we suggest here, our alternative is to postulate “*guided satisficing*” instead. According to guided satisficing, our household would pursue satisfactory levels of his goals, guided by principles of Shari’ah. Options that contradict Shari’ah rules would be automatically ruled out, either by the household itself or by society’s setting required rules.

III. SIPPEL’S EXPERIMENT AND THE CURSE OF DIMENSIONALITY

The German economist Reinhard Sippel (1997) designed some experiments to test rationality's neoclassical concept. His starting point was Samuelson’s attempt to redress the neoclassical theory in a fashion that was disassociated from insisting on cardinal utility. Therefore, he proposed his four axioms that summarized the concept of rationality, namely, the preferences of our consumer must be *complete*, *transitive*, *greedy*, and *convex*.

Sippel experiments were designed to see whether people’s choices among bundles of goods would follow the four axioms. Sippel gave his student subjects a set of 8 commodities from which to choose, a budget line, and a set of relative prices.

The experiment was repeated ten times, each with a different price and a budget line to test various aspects of Revealed Preferences. Subjects were given as much time as they liked to make their choices. After the ten tests, they consumed one of the selected bundles.

The results were a surprise: eleven of his twelve subjects failed the rationality test. He repeated it with a larger group of thirty– to find that twenty-two of these subjects still does not conform to ‘rational’ behavior according to Samuelson’s axioms of revealed preferences. Understandably, Sippel tried to rescue the theory in several ways, none of which worked.

Sippel’s experiment concluded that if obeying the four rules makes one rational, then the vast majority of us are irrational. He hypothesized that real-world consumers couldn’t easily distinguish their utility from different bundles of goods. He also argued that the indifference curves were ‘thicker’ than the thin lines drawn in neoclassical text-

books. Admitting the new thickness of indifference curves reduced the number of violations. It made a random choice –by rolling dice – appear more rational than his students' consumption decisions. Sippel concluded that the evidence for the assumption of rationality underlines the utility maximization hypothesis is mixed. While there are subjects who appear to be optimized, most do not. He stressed the diversity of individual behavior and called the maximizing principle's universality into question.

In reaction, Keen claims that Sippel subjects were behaving rationally (2011) in the face of a real-world phenomenon of which armchair economic theorists are unaware. He argues that Sippel subjects did not choose randomly. Each showed a marked preference for some goods; other goods were not chosen, even at low prices. Some subjects' demand was quite price-inelastic. Others substituted cheaper goods for more expensive counterparts, e.g., Coke for orange juice,

There can be no doubt that Sippel's subjects tried to select a combination of goods that came as close as possible to what they liked to consume, given the respective budget constraints. While it was evident that they attempted to choose the best option, they failed to act rationally, according to Samuelson's axioms.

Keen (2011) revisits Sippel's problem of choice by focusing on the number of available alternatives to Sippel's subjects. Sippel gave his subjects a choice between eight different commodities and let them choose any amount they could afford with their budget. Keen raises the question: how many 'shopping bundles' could this mean they were looking at, each of which contains a different combination of goods? The answer is 'an infinite number of bundles because they considered their choices in continuous units.

In the simple two-commodity case, this results in 11-squared choices – or 121. One's budget might force to rule out 90 percent of these, leaving just ten or so options to consider.

Suppose we allowed Sippel's subjects to consider their choices in discrete units so that they can choose between eight different quantities for each of the eight goods. How many distinctive shopping trolleys from which they would be choosing? The general rule for choices involving many commodities is that the number of different combinations equals one plus the number of units that you could buy of each

commodity raised to the power of the number of commodities you are considering. In Sippel's example of 8 commodities and eight units to buy from each, the number of options is equal to one plus eight raised to the power of 8. Or approximately 16.7 million bundles with different combinations of eight goods. Suppose the budget constraint ruled out 99.99 percent of the options; there would still be over 1,600 distinctive options left for Sippel's subjects.

It is a consequence of the real-world phenomenon that computer scientists have dubbed *the curse of dimensionality*. With a small number of goods, much smaller than usually found in reality, the number of available options that neoclassical rationality requires goes beyond ordinary consumers' ability.

Suppose we looked into the same choice problem through the original neoclassical model in which the consumer chooses between two different commodities. If the discrete quantities being considered were between zero and ten units of each good, then there would be eleven raised to the power of two or 121 optional combinations from which to choose.

No sane individual could make the number of comparisons needed to choose the combination considered optimal by the neoclassics infinite time. The neoclassical vision of reality appears highly unrealistic. The axiom of *Completeness* is unrealistic, as no one can keep in his memory or any other data storage device – a complete set of preferences that are usually available to a standard supermarket shopper. It also appears to violate Transitivity and Convexity (and probably Non-satiation). Therefore, we must admit that while some shoppers like this cannot be assumed irrational, the axioms of rationality adopted by the neoclassics through armchair thinking cannot be considered rational.

Shoppers use several ways to reduce the number of options to a manageable size within one's available shopping time. For example, one could partition choices into a few basic and useful habits to guide purchases to reduce the number of options and make a satisfactory decision in a finite time. According to the *Laws of Computational Theory*, the number of potential solutions to most real-world problems is so many that an optimum cannot be found.

Two reasons are related to the problem of choice in neoclassical consumer theory. First, the ability to compute things falls short of

what is desired. It implies that, contrary to hopes held on computing, most logical problems cannot be solved by a computer program. Second, computing is costly, and problems are too expensive to compute (Ballard 2000: 6). Even for the minority of problems that can be solved, the ‘Curse of Dimensionality’ means an optimum solution cannot be found in a finite time, regardless of the available computing power. Therefore, computer scientists are more skeptical than economists about the capacity to solve even the simplest problems.

Optimizing behavior generally requires impossible amounts of computation. When such computation is possible, it is too costly to make it in a finite time; human behavior cannot be assumed to seek optimization. Instead, it would be more realistic to assume *satisficing*, following Herbert Simon (1996).

Therefore, the neoclassical model of rational behavior must be abandoned in favor of the behavioral perspective of satisficing or bounded rationality instead. The attempt to derive economic principles from the analysis of the isolated made by the neoclassics has not been fruitful. Whether economics should switch to satisficing behavior instead is another question that requires further research.

IV. STOYANOV TEST OF NON-SATIATION

Vasil Stoyanov (2018) used the Luigi Pasinetti Engel curves model with three different shapes of Engel curves, each displaying satiation in the form of zero or even negative slope from a certain level of income onwards. He also used a non-linear regression curve between the level of real disposable income as the independent variable and the amount of expenditure for consuming a particular commodity as the dependent variable. The results conclude that there is an upper limit on spending allocated to any commodity, regardless of income growth. It disproves the non-satiation axiom.

V. NEOCLASSICAL RATIONALITY IN OTHER FIELDS

The rationality assumption should be most applicable in organized security markets⁴⁴, but the available data do not confirm it (LeRoy,

⁴⁴ Organized securities markets have large and impersonal transactions, competitive structure, arbitrage opportunities, sophisticated participants, who can handle foresight and non-transparent pay-offs. Such are the typical agents assumed by neoclassical theory.

1989, Russel 1997). In other words, neoclassical rationality in security markets cannot be assumed.

In decisions related to marriage and divorce, racial discrimination, voting behavior, crime, and the like, assumptions used in economic theory would not be expected to hold to the same degree as in the case of securities markets. Meanwhile, Becker, Landes, and Michael (1977) used economic theory to explain divorce-related behavior, like the negative relationship between divorce frequency and the level of anticipated earnings of men, the determinants of the number of children, marriage within own religious, educational, and I.Q. Groups, and marrying at an early age. They conclude that people's behavior regarding personal matters conforms to neoclassical economic theory predictions.

It appears to be a puzzle. However, we would like to stress that personally-related decisions have not been revisited since 1977. There is a need to make further attempts, using new econometric methods to scrutinize Becker's results.

VI. STRONG REDUCTIONISM & MICRO-FOUNDATIONS

The universe in which humanity has been destined to live is rather complex; it defies simplification. Scientists are attempting to formulate an understanding and a manageable perception of the universe, particularly physicists, who approached the universe by focusing on small components in isolation from each other.

Some credit the advancement of physics from, e.g., Newtonian physics to the periodic table; and quantum to physicists ignoring the overall complexity of the universe. The success in using reductionism gave way to *strong reductionism*. Its approach emphasized that all large-scale systems could be understood by working up from the small-scale. Neoclassical economists argue that macroeconomics should be derived directly from microeconomic foundations. Such an argument is based on strong reductionism. Macroeconomics would therefore become applied microeconomics. It has been the neoclassical answer to Keynes's *General Theory*. The neoclassical macroeconomics has finally become a field of applied microeconomics.

In physics, Poincaré (1956) showed in 1899 that there were limits to reductionism. He proved that a gravitational system with two celestial

bodies (one sun and one planet) was predictable. However, it was impossible to predict a solar system's behavior with more than one planet. It should have put an end to reductionism in physics by the beginning of the twentieth century. However, it continued to dominate mainstream physics until 1975, until its limits became apparent with the advent of the computer.

Early in the twentieth century, scientists had difficulties analyzing the nonlinear relationship between variables. It had been overcome by strong reductionism, namely, the belief that scientists can comprehend the complex systems by looking into its constituents' behavior and then summing their effects: *the whole is the sum of the parts*. Its belief was consistent with linear algebra limitations, which was relatively easy to do before computers. It is reminiscent of the horizontal summing of individual demand and supply curves to obtain market schedules in economics.

With the coming of computers in the mid-seventies of the last century, their number-crunching power enabled researchers to start handling systems with nonlinear relations. Lorenz's model of the weather and other models, where variables interact in a non-linear fashion, scientists realized that, contrary to previous beliefs, *the whole is more than the sum of its parts*. New types of behavior will arise at the aggregate level that cannot be found at the level of the system's "micro" components. These types of behavior that emerged through nonlinear interactions between variables and could not possibly be interpreted by how the micro-units behave at the disaggregated level became known as the *emergent properties*.

While reductionism continued to play some role, the belief that the best way to understand any systems was from the bottom up turned as fallacious. Physics Nobel laureate Philip Anderson (1972) called this fallacy 'constructionism.' He noted two of its manifestations. First, even if a system's reductionist vision were correct, the belief that the best way to understand the system was to construct it from its constituent parts was false. Second, each scale in larger systems produced types of behavior unique to the scale; such behavior cannot be deduced from the behavior of the system's isolated components.

Emergent behavior quickly became part of physical sciences, which was initially termed *chaos theory* (Li and Yorke 1975). It then became

known as *complexity theory* (May and Oster 1976) is a fertile aspect of research in fields as diverse as physics, biology, and economics.

Neoclassical economists, however, insisted upon the reductionist fallacy. Most importantly, it manifested in their reduction of macroeconomics to applied microeconomics. The neoclassics provided a glaring example of emergent phenomena through the Sonnenschein-Mantel-Debreu conditions, acting against their own belief in reductionism. The SMD contribution accepted that a single consumer's demand curve could be shown to be downward sloping. However, it objected that the market demand curve derived from the same consumers' preferences would obey the Law of Demand. Such a market demand curve can have any shape at all.

It is somewhat ironic for physicists to quickly admit emergent behavior that results from the interaction between small microunits of physical matter, leading them to dismiss strong reductionism. Meanwhile, the neoclassical economists, being social scientists, have not accepted that the interactions among individuals in the same market would produce emergent behavior that negates the validity of using simple sums of individual behavior equal to the aggregate. We can, therefore, infer two conclusions. First, macroeconomics certainly is not applied microeconomics. Second, microeconomics itself can't be based on simple extrapolation from the alleged behavior of individual consumers and firms., the study of markets even within microeconomics cannot be reduced to the analysis of individual behavior; under no circumstances can macroeconomics be derived from microeconomics.

Neoclassical economics decided to ignore the discovery of emergent properties within economics. They instead continued to believe in the reductionist fallacy⁴⁵. They continued to analyze the economy from the perspective of the individual rational agent's behavior and infer that price flexibility would always guarantee the absence of macroeconomic problems. Those who subscribed to a different view, like Malthus, Marx, and others, were considered black sheep.

VII. CLASSIFICATION OF ASSUMPTIONS

To explain the neoclassical position versus realism, we need to explain the philosopher Allen Musgrave's classification of assumptions

⁴⁵ Few exceptions are mentioned in Keen (2011). See also (Kirman 1989, 1992)

(Musgrave, 1981). He classified assumptions into three types: negligibility assumption, domain assumptions, and heuristic assumptions.

A. NEGLIGIBILITY ASSUMPTIONS

When some aspects of reality have little or no effect on the phenomenon under investigation, we can ignore them without losing our theory's realism. The number of green leaves on mulberry trees would not influence figs' demand and supply. However, they would influence the supply of mulberries in their season. Therefore, when the fig market is studied, we can ignore mulberry trees, although they may have a very indirect and roundabout effect, which can be assumed negligible.

Another example, favored by Milton Friedman's (1953), is of a heavy ball being dropped near the earth, which would fall in almost the same place as if it had been dropped in a vacuum. In this case, our theory would still maintain its realism if it ignores air friction. The impact of air friction upon where the ball would fall would be negligible. However, air resistance cannot be assumed away when dropping a feather in the same manner.

Some go even further to claim a dialectical proposition that *the more significant the theory, the more unrealistic its underlying assumptions*. Musgrave objects to such a claim.

B. DOMAIN ASSUMPTIONS

A domain assumption specifies the conditions under which theory would apply. If domain assumptions were not fulfilled, the theory would not be valid. In a country where potatoes are considered a good substitute for bread, e.g., Ireland, a rise in the price of bread would lead to a higher demand for potatoes. However, an increase in the price of bread would not lead to a higher demand for potatoes, where it is not a good substitute for bread, e.g., the GCC countries. Therefore, we can say that an increase in bread price would lead to a higher demand for potatoes if and only if potatoes are considered a good substitute for bread.

C. HEURISTIC ASSUMPTIONS

A heuristic assumption is an assumption that is known to be false. However, it is made as a first step to be replaced later on at the following stage of analysis to reach a more general theory. It happens when

economists use pure models. They can start with a pure barter model (no medium of exchange), or a pure production model (no trade), and so on, hoping to move forward in the next stage of analysis towards using more complicated (and therefore realistic) models.

The neoclassical economists started with a pure centralized exchange model without a medium of exchange to construct their theory of value. Many expected to see exchange being decentralized and money being introduced. However, they are still waiting.

Allan Musgrave gives the example of Newton's assumption that the solar system consisted only of the sun and the earth. It gave rise to the theory that planets would follow elliptical orbits (which is a reasonable medium-term guide to actual planetary orbits in our solar system).

In general, a heuristic assumption must be abandoned in the following stage to reach a better theory. Keeping heuristic assumptions without further changing means the theory has not yet been developed. The neoclassical centralized-exchange general-equilibrium theory is a good example. Since Leon Walras has been developed, it still has a centralized exchange framework and is devoid of the medium of exchange.

VIII. CAN WE JUDGE A THEORY BY ITS ASSUMPTIONS?

Theories can be judged and evaluated by their assumptions. Using Allan Musgrave's classification of assumptions above, we can conclude that theory may benefit from *unrealistic* assumptions if the theoretician asserts from the beginning while providing correct arguments that some factors are unimportant in determining the phenomena under investigation. Still, they are included in the heuristic assumptions as a first stage, to be abandoned later. The negligibility assumptions must specify the domain of the theory, about which analysis must be directly concerned. If the real-world phenomena are outside that domain, the theory would not explain its domain phenomena. Even if it did, it would have no relevance to reality.

Furthermore, unrealistic assumptions may be justified only as heuristic devices used to simplify the process of deriving a more general theory. It often happens in physical sciences. However, when critical students complain about the many unrealistic assumptions in introductory economics courses, neoclassical economists often claim that

such assumptions are dropped in more advanced courses. It, of course, portrays the unrealistic assumptions as heuristic tools. Meanwhile, such assumptions are never dropped in favor of more realistic assumptions.

IX. INSTRUMENTALISM VS SCIENTIFIC REALISM

Scientists have viewed their theories as an honest description of reality, which would enable them to derive scientific laws that are not only applicable to reality but also verifiable by reality. Philosopher J. R. Brown (2002) describes the success of physical sciences' current scientific theories in three headings. First, they have organized and unified a great variety of known phenomena. Second, they have been able "to systematize the empirical data more extensively than previous theories. Third, they get more correct predictions right than mere guessing does⁴⁶. Brown takes such success as evidence proving that any conclusion derived from *true premises* must itself be true. In other words, the realism of the underlying assumptions explains the success of their theories. Realism, as Brown claims, quoting Hilary Putnam (1975a), is the only explanation of the success of science. The alternative and perhaps ludicrous explanation that it would be a miracle.

Meanwhile, in economics, Milton Friedman (1953) espoused instrumentalism, or what Samuelson sarcastically called the F-Twist. He claimed that a theory could not be judged by its assumptions but only by the accuracy of its predictions. Such a claim makes stargazers out of scientists and allows science itself to be far removed from reality. It confuses *negligibility* assumptions that ignore some minor details with *domain* assumptions, determining the range of applicability of a given theory.

Allan Musgrave argues most scientists reject an instrumentalist view of science in favor of *scientific realism*. He considers a common belief that theories should not merely predict reality but should, in some sense, represent it. Ironically, Keen (2011) argues that this is the belief of most economists about economic theory. However, this only implies that neoclassical economists consider their theory's underlying as-

⁴⁶ Obviously and perhaps enviously, we cannot say the same about neoclassical economics.

sumptions to conform to scientific realism. Instrumentalism is a smokescreen to hide behind when facing a class rebellion.

Neoclassical economics students notice that the neoclassical theory repeatedly uses the same small class of assumptions. It includes rational utility-maximizing individuals, profit-maximizing firms, and ancillary assumptions built on these foundations. Nonetheless, neoclassical economists deeply believe that their assumptions introduce the essential elements of reality into the analysis. Should they be excluded, their theory would be deemed *unrealistic*. Furthermore, Keen (2011) claims that even economic journals filter out papers that do not make this core set of assumptions.

X. FURTHER DISCUSSION ON INSTRUMENTALISM

How long does it take a rock to reach a surface when dropped from a certain height? Physicists answer by assuming the rock is falling in a vacuum, despite the presence of air that rubs against the stone and slows it down. If the effect of air is sufficiently small, assuming it away will not influence the answer. Assuming away the impact of the atmosphere is a simplifying assumption when reasonably realistic. Economists also use simplifying assumptions. Whether assumptions should be realistic or not has been subject to an argument among economists.

Milton Friedman, regarded by some as an instrumentalist (Hoover, 2004), claims that economic theories are to be judged by their predictions and not by the realism of their assumptions. Friedman's instrumentalist methodology asserts that assumptions' realism is far removed from the validity of a theory. It contrasts with the Keynesian argument that realistic assumptions can generate realistic theories.

Samuelson (1963, pp. 232-233) interprets Friedman's opinion as that theory is accepted if one or more of its consequences is shown as empirically valid to a useful degree regardless of the realism of its assumptions. However, Hoover (2004) takes pain in rereading Friedman to conclude that Friedman's Methodology of Positive Economics advocates causal realism while suppressing causal language in economics.

Crotty (2011) considers Friedman's positivist methodology claiming that assumptions realism has no bearing on a theory's validity as fundamentally flawed. He sides with Keynes's argument that only realistic assumptions can generate realistic theories. Crotty contrasts Keynes-

Minsky's financial market theory based on realistic assumptions concluding that unregulated financial markets are inherently unstable and dangerous. The neoclassical efficient market hypothesis calls for lightly unregulated financial markets to obtain optimal security prices and risk levels and prevent booms and busts. The latter theory has proven incorrect, thanks to its unrealistic assumptions⁴⁷.

Mayer (1998) tries to strike a compromise between Friedman and Keynes by claiming that each theory has a restricted domain, within which its conclusions can be justified. Attempts to apply such findings outside the domain will not work. The realism of assumptions determines the validity domain.

The domain of the rationality assumption covers all household trade and production decisions. Judged by realism, the assumption is hardly realistic. Judged by the results of the underlying theory, it is still a failure.

XI. CETERIS PARIBUS & THE IMPOSSIBLE EXPERIMENT

Every economic variable subjected to an investigation is first considered a dependent, endogenous variable. Like most economic variables, many independent, exogenous variables are influenced to varying degrees. As an example, the quantity demanded of a commodity is influenced by:

- Its price
- prices of substitutes
- prices of complements
- Change in income, tastes, technology, etc.
- Price expectations

It is difficult to analyze all variables at once. However, if we started exploring the relationship between quantity demanded and price, we cannot, even if we wanted to ignore income. We must be careful to keep income and the prices of complements and substitutes constant. The problem is that as the price of the commodity concerned is lowered, real income rises and the quantities demanded of the commodity in question, its complements, and substitutes, change. It makes the derivation of the demand function very complicated, if not impossible.

A similar case is found when income distribution changes. When a commodity's price is lowered, big spenders on this commodity become

⁴⁷ Both theories will be compared later in detail.

relatively richer than small spenders. The former gains much more in real income than the latter. Income distribution between the two groups changes. The demand relationship becomes distorted.

Neoclassical economists postulate a negative relationship between the quantity demanded and the price, assuming that income distribution remains the same. Unfortunately, when the price of the commodity in question is reduced, different people are affected differently. If the commodity were a luxury, a reduction of its price affects the relative income of higher income brackets. Such an income group would become relatively richer than before the price decline. The effects on the quantity demanded has already been influenced by new income distribution.

The ability to analyze the relationship between the quantity demanded and the price depends on the ability to run an experiment in which only these two variables change. If the change in price influences other independent variables, the experiment fails. The assumption of *ceteris paribus* cannot be useful. Much of microeconomic analysis is built around this impossible experiment.

While the relationship between the dependent variable and each independent variable is analyzed separately, all independent variables' total effect must be registered in the final analysis. Otherwise, our results are inconsistent or impossible to verify empirically.

XII. PARTIAL VERSUS TOTAL ECONOMIC ANALYSIS

Macroeconomics looks for general rules that require building theories based on assumptions regarding aggregates behavior. For this purpose, economists use the concept of "representative" agents, who are only vaguely connected to individual actions. However, unlike microeconomics, the representative agent's concept can be done without macroeconomics. The latter faces the dilemma of choice between partial and total analysis.

Total analysis, in principle, should render theories that provide comprehensive explanations. It means that the theory would explain *most* of the changes in the variables relevant to a specific economic phenomenon through interrelationships between all relevant variables. It seems to be impossible for two reasons. The first is that considering all variables involved would make the analysis rather too complicated to manage. Additionally, when *everything depends on everything else*, it is

challenging to set simple policy rules whose design is the ultimate objective of economic analysis.

The second reason is that economic data itself is provisional. Financial data is not as absolutely fixed as the physical phenomena (Schlicht, 1985). One example is that the supply behavior of firms is influenced by their strategies and technological conditions. Since strategies and technological conditions change from time to time, the data on supply behavior will reflect provisional elements that hinder total analysis. Another example is that household demand is influenced by income and preferences, subject to change. The data on household demand will equally contain provisional elements.

The solution could be to incorporate firm strategies and technological conditions in our firms' supply analysis. Similarly, we can include income and preferences when analyzing household demand. But even if we aimed to incorporate such variables within our analysis, we will fail to predict, e.g., how technology or preference will change in the future.

Schlicht (1985) quotes Jevons (1976) on the difficulty of proving the benefits of trade for a country. Even if we isolated all factors in such a country while introducing free trade, technology and preferences would continue to change during our experiment. The introduction of free trade would be associated with some benefits, which may come from free trade, while other parts would come from technological changes, improvement in infrastructures, etc. Jevons suggests that we accept the proposal that trade is beneficial because had we been able to design an experiment where all other factors would be fixed, we would conclude.

What are the requirements to be met by those factors we take as data of our analysis? Let us consider this question.

XIII. CREED OR DOCTRINE

Different schools of thought in economics draw from different creeds. Classical economics draws from the Christian creed. Socialist economics draws from materialism, which is also a creed. Neoclassical economics takes off from the concept of hedonism, which is also a creed.

Therefore, we can say that Positive or amoral analysis is a myth. One's perception of the universe will depend on one's position, on which planet and the galaxy one is standing with his/her telescope. Therefore, we can say, without being apologetic or feeling more biased

than other schools of thought, that Islamic economics is based on the Islamic creed.

XIV. HUMAN REASONING AND CRITICISM

Qur'an and Sunnah provide the main principles forming the legal and institutional environment within which agents manage their resources in a world of scarcity. Such principles provide a general perception of an economic system that finally translates into a human interpretation that provides institutional structures that embody the principles themselves. Such structures are human interpretations that depend on the state of knowledge in Shari'ah and Islamic economics and not a divine revelation. *They are interpretations that can be subject to debate and differences of opinion.* The resolution of such a discrepancy would depend on economic reasoning and analysis.

Therefore, Islamic economics is not divine; it can be discussed and evaluated using the scientific approach. Islamic economists, as well as Shari'ah scholars, are neither divine nor saints. They are not infallible, nor they receive revelation from God. They are merely human intellectuals whose opinions can be proven wrong. The source of falsely imagined divinity comes from Shari'ah and economists' relationship. Some well-intentioned scholars have propagated among Shari'ah scholars that their judgments carry their signature as agents or representatives of God. While we disagree with the implication of divinity in any discipline, including Fiqh, we dismiss it entirely in Islamic economics⁴⁸.

Creed introduces harmony among the different parts of the discipline, enabling it to present an economic system capable of being tested and used to design policies.

MATHEMATICS AND NEOCLASSICAL ECONOMICS

Many economists blame mathematics as a cause of failures in economic theories. They argue that excessive formalism is against eco-

⁴⁸ It comes from Ibn Qayyim al-Jawziyyah A'laam al-Muwaqqi'een 'an Rabbil-Aalameen (1292-1350). The name of the book can be translated into 'Who's Who in Signatories for God.' He means that Shari'ah scholars issue rules in the name of God, as if they have been authorized to sign for him. He certainly did not mean that those scholars are not human or they are infallible.

nomics's inherent nature, namely its social science. However, a sound knowledge of mathematics would expose severe neoclassical mistakes.

I. ASSUMPTIONS CONTRADICTING OTHER CONDITIONS

There are three levels to look at why conventional economic theories are not sound. The first level is that economists assume contradictory conditions to build their models. Thus, the theory is built on a mathematical error. The second level is that conventional economic theory applies wrong mathematical tools to analyze dynamics. It uses complicated comparative static equilibrium analysis tools, forgetting that dynamic systems analysis is more appropriate and less laborious. The third level, which is a more profound level, is that conventional economics does not recognize mathematics limitations.

In particular, economic theorems based on fallacious mathematic propositions can be looked at in more than one way. First, they suffer from a logical contradiction. It is built upon assumptions that contradict what the theory wants to show. A case in point is the economic theory of consumer behavior. It theory assumes that it is possible to aggregate individual demand curves to derive a market demand curve, implying that the market demand curve has the same characteristics as an individual's demand curve.

Meanwhile, economists have proved that this is only possible if two conditions are applied. The first condition is that all consumers have the same preference map, which means only one consumer in the market. The second condition is that all goods are homothetic, i.e., the proportion of income spent on each does not change with income. It ultimately means that there is only one commodity. It contradicts the basis provided by the theory for aggregation.

II. OMITTED VARIABLES

The most important variable omitted by neoclassics as viewed by its critics is time. Good mathematical economics includes time as an essential aspect of reality, leading to a different perception and results. Other important omitted variables include uncertainty and expectations under uncertainty, money, and debt.

III. FALSE EQUALITIES

If something is extremely small in a neoclassical economic argument, it can be treated as zero. Neoclassical economists are so used to

presume that an infinitesimal amount is equivalent to zero. They don't realize that they violate one of the fundamental rules of mathematics.

IV. UNEXPLORED CONDITIONS

Unexplored conditions refer to the fact that neoclassical economists do not explore their economic theories' logical foundations. When neoclassical economists prove a theory, they leave behind many logical flaws. It is unscientific. Moreover, neoclassical economics utilizes absurd assumptions that do not appear worthy of a scientific research program.

Thus, mathematics is not to blame for the defects of neoclassical economics. Instead, it is a bad mathematical practice by neoclassical economists. Another aspect of the neoclassical use of mathematics is that modern mathematics has limits that are usually ignored by neoclassical economics. The most outlandish example is that neoclassical economics is probably the only field of applied mathematics that still believes that, with an accurate enough model of the universe and accurate enough measurement today, the universe's future course could be predicted. However, for mathematicians, the future could be predicted if only the present were known to absolute accuracy, which is impossible.

V. ECONOMICS AND LINEARITY

Neoclassical economists have persistently applied equations that are predominantly *straight lines* to solve economic problems. However, linear mathematical models are appropriate for only a very tiny part of the real-world system. It is rather excessive to use such models useful for only a small subset of problems, which are too narrow to include proper economic analysis. The appropriate mathematical model for economic problems is dynamic equations or nonlinear differential equations. Most of these equations cannot be solved. If more than three equations interact, they become impossible to solve.

Therefore, we can see those neoclassical economists do not appreciate the nonlinear analysis. Besides, they have so far ignored chaos and complexity theory. The reason is that chaos and complexity theory does not share the neoclassical economics concern with equilibrium.

Furthermore, some nonlinear relationships between variables had been treated as a straight line. The reason is that neoclassical economics believes that society is only the sum of its parts. Thus, to calculate the whole, we just need to add the parts up. It implies that the interac-

tions between the parts are either zero or negligible. Such notion completely excludes interactions where one variable is multiplied by another. For example, a firm's revenue equals one variable (the number of units it sells) multiplied by another variable (the sale price).

However, this cannot be allowed if neoclassical economists consider society equal to the sum of its parts. To solve this issue, economists then assume that the price that a competitive firm faces is constant. Thus, the firm's revenue is a constant price time a variable (quantity). What makes it worse is that neoclassical economists want the entire industry's price to be a variable. Still, the individual firm's constant price ignores competition among the firms. However, such notions can't happen in mathematics. neoclassics force such a situation by making an invalid assumption, treating the price, which should be a variable as a constant. That's why there are always straight lines in neoclassical economics.

In conclusion, we cannot develop economics without fully appreciating the limitations of mathematics. If economists acknowledged the limits of mathematics and used computers to help construct models, meaningful economics will be developed.

SCIENCE AND MODERN SOCIOLOGICAL THEORIES

Steve Keen (2011) uses the eyeglasses of modern sociological theories to look through neoclassical economics. Such theories argue that science is a society, meaning a collection of scholars in science who share a perspective on what defines their discipline and what constitutes scientific behavior. Science is ultimately an intellectual discipline, with core beliefs that cannot be challenged or altered by a member of its society without losing group membership and his/her status as a scientist. Such challenges would imply the rejecting, in some crucial sense, the scientific foundations.

Any science's core beliefs are surrounded by ancillary beliefs relatively more flexible. They act as a *protective belt* for the core beliefs. Besides, science has a set of analytic techniques and a pipeline of unsolved problems under consideration. The ancillary beliefs and techniques are expected to solve the outstanding issues and increase their science's explanatory power. Should they fail, the ancillary beliefs would be subject to serious review and adjustment.

If this does not work, the core beliefs must be reconsidered. When problems become rather challenging and intractable, core beliefs will be abandoned. It can happen through the formation of a new school of thought or the ascendancy of an existing rival school. A science gains a progressive scientific research program when a school of thought expands the range of explainable phenomena using its core beliefs either by experiments that confirm its predictions or extensions of its theories to novel areas. If experimental results contradict its predictions, and its theories are adjusted to rationalize failures, it becomes degenerative with a negative heuristic.

Keen then claims that the sociological description of science fits the historical record of economics. At the beginning of the current century, economics had at least five schools of thought. The neoclassical school was dominant. Competing schools included the (i) post-Keynesian, (ii) Marxian, (iii) Austrian, (iv) Sraffian, (vi) Complexity theory and Econophysics, (vii) institutional school, (viii) evolutionary school, and (viii) Islamic economics school. Each develops its approach to explain similar phenomena. The neoclassical school ignores the other schools, while the other schools criticize the neoclassical school.

Economics display some similarities with physics. Each has some alternative perspectives. However, those suppressed in economics is far greater than in physics. Neoclassical economics started as a progressive school, at the time when its main rival, the classical school, was degenerate. When the works of Jevons, Menger, and Walras came together in one school in the 1870s, the classical school was in crisis.

It had difficulty explaining the relation between value and prices but insisted that value was fundamental to price determination. A problem accentuated by the last classic Karl Marx.

At the turn of the 19th century, neoclassical economists found confidence that their science's explanatory power would be continuously expanding. It appeared as a progressive scientific research program. However, after two major crises and several in-between, neoclassical economics is becoming increasingly degenerate. A contemporary concern is not the expansion of its discipline's explanatory power, but it is to adjust its protective belt of ancillary beliefs to defend the increasingly threatened hard-core beliefs.

CHAPTER VI: ISSUES IN ISLAMIC ECONOMICS METHODOLOGY

THE RISE OF MODERN ISLAMIC ECONOMICS

The application of Islamic economics is as old as Fiqh itself. However, modern Islamic economic literature flourished only in the last half of the twentieth century. Islamic economics, pioneered by Abu Yusuf (731-798), Al-Asfahani (1108), Al-Mawardi (972-1058), and Ibn Khaldun (1332-1406), and many others; applied before colonialism, until Muslims imported Western systems. The institutional setup used in the early years gave way in the last two centuries to the current structure inherited from the West. It evolved over several centuries into the everyday interest-based banking and financial system. The Islamic economic system's theoretical analysis must carry out institutional evolution through an intellectual process. There is no Islamic economic system, reflecting an Islamic economics theoretic structure.

Modern concern with Reba was preceded by a decline in Zakah and Awqaf's practice. In the middle of the last century, precursors of Islamic economics appeared in Eissa Abdu's (1982) writings, al-Fanjari (1972), Maudoodi (1963/1969), and Baqir Al-Sadr (1982). The first two were academicians, while the last two were not professional economists, but rather authors using Fiqh and historical analysis while they echoed public concern regarding general religious deprivation. Their writings took two directions. The first was to criticize serious inadequacies in both capitalism and socialism. It was a relatively easy task, as both systems leave a lot to be desired⁴⁹. Second, provide textual support to an Islamic economic system's basic features. As Fiqh is full of differences of opinions and conflicting interpretations, it was challenging. Fortunately, as those pioneers had some basic training in Fiqh, the challenge has been successfully met. However, certain parts of the Islamic economic system remained to be clarified, as the pioneers lacked the economic tools of analysis to discover many subtleties. Sifting through writings in Islamic economics, we can put our finger on an es-

⁴⁹ While they have criticized Capitalism and Socialism, they rarely ventured into criticizing neoclassical and Marxist economic theories, because they were non-economists.

sential issue in its methodology, which we must settle before we go deeper into the discipline.

AUTHENTICATION OF THE TEXT OF QUR'AN

Islamic economics requires the ability to carry out the economic analysis and the knowledge of Fiqh rules related to economic activities. Fiqh is a textual discipline that carries out its analysis in several steps. The first step is gathering of Qur'an and Hadith or Sunnah texts that are directly relevant to the subject. The second step is to use deduction to derive Shari'ah rules from the authenticated text. However, the deduction must not be carried out too far, as it must be limited by the divine text.

Qur'an has been scribed during the life of Prophet Muhammad ﷺ. Its full text has been memorized by heart by him and his companions. The oral version of the Qur'an continues to be handed from memory to memory by Qur'anic students. The first Caliph formed a committee to compile the Qur'an from its numerous transcripts. The committee checked each verse on the existing transcripts against two other records. The first was the memories of each member of the committee. The second was to review the text by the other prominent experts. The compiled copy of the verified text was entrusted to the Prophet's wife, Hafsa.

About 15 years after the first compilation, with the fast spread of Islam, authenticated copies of the Qur'an were required in different population centers in Muslim areas. The chairman of the same compiling committee (Zaid ibn Thabit, the Prophet's primary scribe) was charged with preparing authentic copies. He formed a committee that sought each verse's corroboration in Hafsa copy with at least two other written records kept by reputable individuals. It is reported that this comparison was successful for all verses. Seven manuscripts were then prepared and authenticated. One was given to the third Caliph himself. Reference copies were assigned to Madinah, Makkah, Kufah, Damascus, and other major cities.

Qur'anic verses require no authentication. The existing copies are the same as those revealed to Prophet Muhammad ﷺ.

HADEETH AUTHENTICATION

I. RECORDING

Hadith is the record of the Prophet Muhammad's ﷺ saying, deeds, and confirmations. Some count more than 100,000 persons who encountered the Prophet ﷺ and narrated his words or his deeds. There is a claim that the prophet ﷺ while ordering instant recording of the Qur'an, has disallowed recording of his Hadith. Perhaps he may have wanted to keep them apart. Such a claim is easy to dismiss for several reasons.

They claim that the Prophet ﷺ prohibited Hadith recording ignores the radical difference between the literary structures of Qur'an and Hadith that makes both texts easily distinguishable. It also ignores that the Prophet may have gradually permitted the recording of Hadith after the Quranic revelation process, and its inscription has become regular.

Claims that the Prophet ﷺ prohibited recording Hadith are encountered by narrations that he allowed it. Hadith scribes included the Prophet's companions, like Ali, Abu Bakr, Abdullah Ibn Umar, Abdullah Ibn Amr ibn Al-A'ss, and others.

The false claim that Arabs were generally illiterate applies only to Bedouins who were generally illiterate. Urbanized Arabs in Yemen, Hijaz, Iraq, Najd, and the rest of the Arab peninsula were literate. The verse Aljum'a, 2: *هُوَ الَّذِي بَعَثَ فِي الْأُمِّيِّينَ رَسُولًا* Refers to religious not language illiteracy.

The Prophet ﷺ set a ransom for war prisoners to teach 10 Madinah children how to read and write. It indicates that non-Muslim Arabs were literate. Furthermore, the Prophet ﷺ strived to increase literacy among Muslims.

II. VERIFICATION

For the authentication of Hadith, Fuqaha' developed a methodology under the name of the science of Hadith⁵⁰, which included the approach to authentication and a classification system of all Hadiths according to their degree of authenticity.

⁵⁰ علم الإسناد

Authentication depends entirely upon evaluating the chain of narrators reporting Hadith as a universal first step. The authenticity of the text of Hadith is an occasional second step. The chain of narrators must fulfill five criteria: continuity, integrity; infallibility; retention; freedom from hidden defects; and safety from any aberrance. The last two standards also apply to the text authentication but were occasionally used. The reason is that Hadith verification, based on the first three criteria, reduced the need to apply the last two.

The number of Hadiths suspected of being fabricated runs into thousands. One of the ways to discover fabricated hadiths is to examine their text. Most of the fabrication took place during the Fourth Caliph Ali Ibn Abi Taleb's struggle to defend Shura against his political opponent Mua'wiyah. Fabrication took place to support the position of each faction against the other. Besides, hypocrites, like Ibn Saba' who feigned Islam outwardly but harbored enmity within, manufactured numerous narrations to spread wrong ideas and sedition. In summary, hadith scholars' job is far more complicated than imagined.

The work of Hadith scholars has produced six books of rigorously authenticated Hadith. Rigor is reflected in assuring the quality of narrators and the text. They are:

- Sahih al-Bukhari
- Sahih Muslim
- Jami` at-Tirmidhi
- Sunan Nasai, or Al-Sunan al-Sughra
- Sunan ibn Majah
- Sunan Abu Dawood

The consensus of Fuqaha' is that these books, together with Al-Muwattaa of Ibn Malek and several others as a trustworthy compilation of Hadith. Each narrator has been intensely investigated while assuming no infallibility in any of them. Some Muslims still accept hadith recorded in other books, based on the narrators' assumed infallibility. However, such infallibility enjoys only limited acceptance and credibility among Muslim scholars.

Advances in information and communication technology have, on the one hand, facilitated gathering and comparing Hadiths. On the other hand, the same tool has been used to spread manufactured Hadiths. Furthermore, even unauthentic versions of the Qur'an have been

placed on suspicious websites to tarnish Islam in a campaign of misinformation. Some scholars have been able to provide information systems to sieve out bogus versions of the Qur'an. However, the spread of manufactured Hadiths continues. But easily accessible electronic records facilitate comparison.

RANKS OF HADITH AUTHENTICATION

1. *Sabih*: authentic, fulfilling the following conditions (Ibn Hajar, 2001)
 - 1.1. Each narrator is trustworthy;
 - 1.2. Each narrator is reliable, capable of preserving the narration in memory, or, by writing it when he heard it;
 - 1.3. The chain of narrators must be connected (*muttasil*); each narrator in the chain was capable of having received the hadith from a predecessor;
 - 1.4. freedom of 'illah (hidden detrimental flaw or flaws), e.g., the establishment that two narrators, although contemporaries, could not have shared the hadith, thereby breaking the isnād.)
 - 1.5. freedom of irregularity, meaning that it does not contradict another hadith already established (accepted).
2. *Hasan*: a *Hadith* whose authenticity is not as well-established as that of *Ṣaḥīḥ Hadith*, but sufficient for use as supporting evidence.
 - 2.1. The competence of one of its narrators is less than complete.
 - 2.2. It may rise to the level of being *Ṣaḥīḥ* if it is supported by numerous Isnād (chains of narration).
3. *Musnad*: a Hadith that has a chain of narrators successively ending with a companion of the Prophet ﷺ.
 - 3.1. A *Hadith* was reported by a *hadith scholar*, based on his teacher's narration.
 - 3.2. The teacher has heard the *hadith* at a conducive age from his teacher.
 - 3.3. Each previous teacher as in turn heard from his teacher,
 - 3.4. until the *Isnād* reaches a well-known Companion, and then the Prophet ﷺ.
4. *Muttaṣil*: consecutively connected from its latest narrator to the previous one.

- 4.1. It a continuous chain of narration
 - 4.2. Each narrator has heard that narration from his teacher.
5. *Da'if*: a weak Hadeeth, due to:
- 5.1. Discontinuity in the chain of narrators. The omission of a narrator at different positions within the *Isnād*. Discontinuity has several degrees.
 - 5.2. A narrator suffers from some disqualifying criticism.
 - 5.3. Spurious by the confession of their inventors.
 - 5.4. *Mawḍū'*: narrations are recognized by external evidence related to a discrepancy found in the dates or times of a particular incident.

ECONOMIC ANALYSIS

In Islamic economics, we leave the monumental job of collecting the relevant divine text and authenticating it to religious scholars. We naturally must focus on our specialization, which is to derive rules that apply to economics from the divine text and provide analysis within a discipline that uses economics methodology.

Economics is a social science that attempts to Develop theories about human behavior towards scarcity. Islamic economics derives such rules under the assumption that Shari'ah principles are effectively applied. Besides, the rules of Shari'ah themselves are analyzed to discover their effects and rationale, to formulate policies that would ensure receiving their benefits while genuinely applying them. The derivation of principles is followed by empirical tests to verify their hypotheses.

THEORIES: CONSTRUCTION, TESTING, AND REPLICATION

I. THEORY CONSTRUCTION AND TESTING

Theory starts with axioms; assumptions then postulates logically derived from axioms and assumptions. Some variables are assumed to be fixed to facilitate analysis with some simplifying assumptions before adding more variables to provide a more comprehensive theory. It is where most analysts could fail. Keeping some variables fixed could be impossible. An example is the attempt to keep real income and income distribution fixed in deriving the market demand curve. Theories can sometimes be cast into mathematical equations to use mathematical

logic for clearer exposition and more straightforward proofs of theorems.

Conclusions are derived logically with or without mathematics. Their mathematical structure comes in handy at the stage of turning them into testable hypotheses. It is usually done by gathering data to test the theory using econometric methods. Contrary to econometrics' common use, testing hypotheses must render replicable results. The inability to produce the same results from the data used discredits theories.

II. REPLICATION

Hubbard and Vetter (1996) analyzed the content of 18 leading business journals covering 22-year from 1970 through 1991. They found that published replication and empirical research extension are uncommon in business disciplines, including accounting, economics, and finance. Such research constitutes less than 10% of published empirical work for the journal content and during the period surveyed in the three disciplines. It also constituted 5% or less in the management and marketing fields. Perhaps this could be explained by the fact that the results usually conflict with existing findings when such work is undertaken. Therefore, it is legitimate to express serious apprehension about how limited the value of these areas' empirical results is. In economics, the results of this study expose the unsuitability of the existing theory and practice of economics to guide the development in this field. Hubbard and Vetter suggested establishing strategies for instilling the tradition of research replication to facilitate knowledge development in economics and other business disciplines.

Martin and Clarke (2017) found several replication problems in psychology. Most remarkably, they argue that there is a substantial publication bias in favor of publishing original and positive results and against publishing negative and replication results. They argued that such bias was one reason for replication failure. However, little empirical research exists to demonstrate that journals explicitly refuse to publish replications. They reviewed the instructions to authors and the published aims of 1151 psychology journals and whether they indicated that replications were permitted. They compared editorial practices among different journals and differed between low and high impact

journals. They found that only 3% of the journals stated that they accepted replications, with no difference between high and low-impact journals. No journal in clinical, forensic, health or evolutionary psychology explicitly accepted replications.

Reid, Rotfeld, and Wimmer (1982) find that only 50 percent of original authors would positively respond to potential replicators by providing the necessary information and materials in the field of consumer behavior. They propose imposing sanctions on journals whose original authors balk at cooperation and increasing researchers' awareness of the necessity of collaboration.

Therefore, we must ensure that journals publishing articles in Islamic economics demand detailed information regarding empirical papers' data and methodology and stand ready to supply them to potential replicators. It would ensure the continuous advancement of the discipline.

III. BETWEEN FIQH AND ECONOMICS

It is important to note that there is no false claim to positivism or the absence of moral judgment in Islamic economics, unlike neoclassical economics. Axioms and assumptions must be both realistic and morally justifiable.

It seems at the outset that no one can handle both Fiqh and economics simultaneously. The differences between the methodologies of both are so drastic. Fuqaha' cannot carry out sophisticated economic analysis, as they are not equipped with the necessary tools. Fortunately for economists, learning Fiqh rules related to economic activities is made easy because the relevant material is of a manageable size and can be self-taught to economists in a reasonable time. Therefore, and as a rule, economists carry the primary responsibility for the discipline. Meanwhile, Shari'ah scholars can make useful contributions in specialized areas, using Fiqh methodology, which professional economists can use.

INTELLECTUAL FREEDOM & SCHOOLS OF THOUGHT

Scientific disciplines are human, not divine. As it considers thinking and use of intellect as a religious duty, Islam teaches intellectual freedom to open the door to derivate scientific principles. We have already explained that intellectual thinking is every Muslim's duty, as

Muslims are ordained to think and not imitate. Qur'an states the general principles that are invariable with time; it leaves the changeable details to be filled out and modified by humans according to changing circumstances.

While intellectual freedom is prescribed under Islam, only opinions widely accepted among scholars would have a good chance of application by the whole society. It means that everyone is entitled to his/her opinion but, when it comes to issues of social interest, one must convince the majority of his/her opinion while accepting the majority rule.

As each Muslim is commanded to learn the basics of his/her religion⁵¹ and not be so uninformed that he/she must imitate some trustworthy mentor, Muslims would be entitled to apply their understanding to their purely personal practices. As an example, if one prays at home, he/she can follow his/her understanding. However, if one prays in a mosque, he/she should follow consensus in the neighborhood mosque. Therefore, schools of thought should stop at social activities in which Muslims of several ways of thinking take part. Islamic economics, therefore, cannot limit itself to the interpretations of one school and must advocate some consensus.

It resolves the issue of having multiple schools of thought in Islam, whose number now amounts to eight⁵². Any school of thought cannot be considered by itself as a religion. It is bound by most scholars' opinions on social issues, including political and economic issues. Furthermore, advances in information technology have made all the Prophet's Hadiths available electronically. The authenticity of each can be evaluated. It leaves little room for holding opinions outside the con-

⁵¹ The bases of Islam, as found in the Qur'an include the arguments and evidence of the existence of God, the alternative approaches developed by unbelievers (including atheists, agnostics, believers in a middle way between divisibility and multiplicity of God, like trinity, believers of limitations in God's powers, etc.) to render divine teachings irrelevant or ineffective and how the revealed truth can be properly understood. In other words, the Qur'an offers a wholly integrated intellectual culture that the basis for educating believers.

⁵² The eight does not include groups considered to espouse radically different beliefs. Those are truly different religions and not schools of thought within Islam, like: Qadyani (mistakenly known as Ahmadiyyah), Baha'i, Ismailia, Nusairiyyah (Alawites) and the like. It does not dismiss the possibility of reasonable dialogue with such religions for the sake of reaching common grounds with Islam. It does not deny their rights to their own beliefs.

sensus represented by the majority opinion. Besides, Muslim scholars from every country gather periodically under the International Fiqh Academy's umbrella, whose resolutions represent a broad consensus.

Rules derived by jurists and gaining consensus are derived through *human ijtihad* or *due diligence*. Such human effort bears being right or wrong and cannot be taken as divine. It opens Islamic economics to discussion among Muslims and non-Muslims. The discipline is made by humans and is subject to human judgment.

COMMON MISCONCEPTIONS:

I. DIVINE ISLAMIC ECONOMICS VS MAN-MADE CONVENTIONAL ECONOMICS.

According to the divine text in which Muslims believe, God did not reveal a specific economic system. He revealed behavioral rules for economic activities, like the prohibition of Reba (interest or debt-trade), in addition to ordaining the payment of Zakah obligation, and the encouragement of the establishment of Awqaf.

Therefore, humans configure the Islamic economic system to implement the divine rules. It is based on the human perception of such rules and how they can be implemented in real life. It Depends on human-developed institutions, technologies, and policies.

Therefore, we can say that rules are divine, but systems and policies are human-made. Both conventional and Islamic economics stand on equal footing in this respect. They are both open to discussion. One exception, the rules upon which Islamic economics is based are divine, while value judgments found in conventional economics are worldly values. The latter are open to the discussion while the former is not.

II. NO SCARCITY IN ISLAMIC ECONOMICS?

Economics studies peoples' behavior towards scarcity. Similarly, Islamic economics studies peoples' behavior towards scarcity while committed to the rules of Shari'ah. Without scarcity, people do not need to match limited resources with unlimited wants. There would, therefore, be no need for economics (Islamic or conventional) as a social science. Different schools of thought in economics offer different perceptions of limited resources and wants. In Islamic economics, the concept of scarcity can be different depending on how both resources and wants are visualized. Therefore, we can expect to develop a differ-

ent perception of scarcity and different approaches to solving its problem. Market economies offer a market-based solution. Totalitarian economics provides a solution based on centralized allocation and distribution. Islamic economics has its unique solutions.

There are many verses of the Qur'an that state that on earth, God provided humanity with limited (carefully measured) resources, as it is a place to test followed by reward or punishment in the hereafter. In Paradise, there is no scarcity. It is not a place for testing but a place for rewarding those who successfully pass the test and for punishing those of fail. Had there been no scarcity on earth, humans would not have needed to strive. There would be no need to allocate resources between consumption and investment. Therefore, we can say that the idea of no scarcity runs contrary to reality and religious texts.

Some of those who deny the existence of scarcity in Islamic economics visualize the Islamic economic system as divine and ideal. The question of the divinity of the system has been handled above. Since, as we argued, the system is human-made, it cannot be ideal. Furthermore, it is natural to expect scarcity to be handled differently in Islamic economics. Wants would be perceived differently under the rules of Shari'ah, and means would also be differently viewed.

III. THE ECONOMIST AS A SCHOLAR

Economics approaches questions in a fashion that is somewhat, but not completely, similar to physical sciences. They build theories, collect observations, and use evidence to test their hypotheses for acceptance or rejection.

The scientific method is the common denominator between economics and physical sciences. Its seminal beginning is found in the works of Ibn Rushd (1126-1198)⁵³, who is the leader of Muslim rationalists and is considered, together with Ibn Tufail (1110-1185), to be the most influential intellectuals of Cordoba (Ghazanfar, 2011). Ibn Rushd's ideas of rational thinking were a natural result of being a stu-

⁵³ Ibn Rushd most influential book on philosophy, "Commentaries" on Aristotle was translated into Latin and Hebrew. Super-commentaries on his commentaries appeared later by Latin scholars. In his rebuttal of Al-Ghazali's arguments (Tahafut al-Tahafut, or Incoherence of the Incoherence), he stated that the "Denial of cause implies the denial of knowledge and denial of knowledge implies that nothing in the world can really be known." (Ghazanfar, 2011).

dent of the Qur'an, which teaches belief based on observation and intellect implementation. In Aristo's philosophy, he found the same flavor that enticed him to espouse his ideas. However, Islamic Fiqh had already been established as a textual discipline. Divine text is first collected and authenticated, then interpreted to derive Shari'ah rules. Observations and deduction are used by Fuqaha' in two places: authentication of Hadith (Prophet's traditions) and the derivation of Shari'ah rules from all relevant divine text. While this methodology continued, Fuqaha' took exception to Ibn Rushd, as they feared that their textual discipline would be wholly transformed into a science-based on rationality. That is why they may have ignored or even suppressed Ibn Rushd's contribution. It is somewhat surprising, as the Islamic creed itself, belief in one God (universal, vast and unlimited by form, space, and time), angels, prophets, and revealed books (in their authentic versions) could be easily justified by logical reasoning. Only mystical beliefs require blindfolded acceptance. According to most Islamic schools of thought, the Islamic creed's core does not include any such beliefs. Mysticism would lie beyond Islam's essence, used by people who claim perception of the divine that Transcends logic and rational thinking and associated with some mysteries.

Understandably, Christian and Jewish theology had their mysteries that cannot be explained logically. In particular, Christian theologians were most apprehensive about Ibn Rushd's ideas as applied to theology. Thomas Aquinas championed the fight against rationalism. Ironically, he sought help in Imam Al-Ghazali's theses (1058-1111), whose relationship with philosophy came through his mystical writings, particularly *Tahafut Al-Falasifah* (The Incoherence of Philosophers). We cannot claim that Al-Ghazali's writings were against the rationalist school outright, as he applied logic, reasoning, and observations to his theological discourses. We can interpret his attack on philosophy as an attempt to protect the core of Fiqh from transforming into a discipline based on rational thinking. It, I venture to say, was not intended by Ibn Rushd, who was himself a faqih. Besides, in al-Ghazali's writings, one can sense his justifiable apprehension of assuming too much rationality in social sciences. Its particular point had already proven useful when considering neoclassical economics.

Ibn Rushd Commentaries on Aristotle were translated into Latin and Hebrew. Religious scholars of Islam joined those of Christianity and Judaism in their stand against Ibn Rushd to protect the sanctity of their ideas in Judaism and Christianity and to protect Fiqh methodology in Islam. It was so, even though the Islamic creed itself appears to be most rational in its being based on the idea of a universal God who possesses 99 well-defined attributes of excellence but remains unlimited by form, time, and space. Concepts like the original sin, Trinity, and that God favors certain people to others are all strange to Islam. The dialogue between Al-Ghazali, the mystic, and Ibn Rushd, the rational, echoed in Christian thinking as Christians saw in Ibn Rushd's thesis on rationality as a threat to their creed. However, Jewish and Christian apprehensions towards the scientific method of Ibn Rushd have ultimately subsided. Ibn Rushd's methodology had already entered classrooms everywhere, while mystical religious beliefs have taken backstage⁵⁴.

Another essential principle we learn from Ibn Rushd is that there is no inconsistency between reason and faith. It is one postulate that we accept in the discipline of Islamic economics. We will not fall back hesitantly, lest economic analysis shows that some Islamic economics's underlying rules can lead to undesirable effects. We initiated this textbook based on our desire to show that an Islamic economic system, adequately constructed and honestly implemented, will fulfill the economic objectives of any society.

IV. EXPERIMENTS AND OBSERVATIONS

The contribution of Ibn Tufayl is both significant and subtle. In his story, Hayy Ibn Yaqdhan Ibn Tufayl's main character uses reasoning throughout. His journey, reflecting the modern scientific method. It has been forcefully expressed through certain events, like Hayy's dissections of animal cadavers, to understand the 'principle of life (Malik, Ziermann, and Diogo, 2016). The philosophical story of Hayy includes

⁵⁴ It is ironic that Muslims, whose creed can be logically justified ignored and suppressed Ibn Rushd, while Christians whose creed has a significant mystical content ultimately adopted his ideas. The acceptance of Ibn Rushd scientific approach in Western classrooms promoted sciences. meanwhile, it remained outside the church and did not significantly influence its creed. In the Muslim world, suppression of Ibn Rush's ideas did not help scientific development. The rational Muslim creed did not succeed to filter into classrooms.

his creation from clay or born and then left to his destiny in a floating, tightly sealed ark. The current took him to an equatorial island, where a deer raised him. He lived on the island until he met two other men. Being alone provides him a chance to contemplate and to discover life.

Predating Robinson Crusoe (Defoe, 1719) by centuries, this story makes many philosophical points. Most importantly is that man is eager to learn. He can do so through observation and experiments. Western interpreters miss some of the salient points made by ibn Yaqzan. First, man is created either from clay or by birth to a woman. Second, man is both body and soul, which man dies upon leaving the body. God does not incarnate himself into a human body or anything else, as this is not becoming of Him. Ibn Tufayl has not entertained such a third alternative, common among pagan religions and Christianity. Man is not created with a blank soul. He is naturally inclined to discover God and directly connect to Him. When Hayy's deer mother died, he searched for her soul in her body through dissection. He found nothing but claimed that her soul resided in an empty section of her heart. Once gone, she was dead. Therefore, Ibn Tufail complements Ibn Rushd's ideas of logical deduction with empiricism.

A falling apple guided Isaac Newton to the theory of gravity. Irving Fisher (1933) observed a phenomenal rise in debt before the major crises of the Great Depression. He also experienced suffering the loss of his savings in the financial markets. It motivated him to develop the ingenious but largely ignored debt-deflation theory. In each case, a theory is formed to tie both phenomena. Evidence is collected later for empirical tests. If no relationship were found between monetary expansion and inflation, the theory would be rejected. If a relationship were found, the theory would not be rejected.

V. SHARI'AH RULES AND MAQASSED,

Economic activities must not violate any of the six mandates, objectives, or Maqassed of Shari'ah, namely, the promotion of (i) creed, (ii) self or life, (iii) lineage or progeny, (iv) honor, (v) intellect and (vi) wealth.

In economics, this is translated into:

1. Economic efficiency,

Economic efficiency is necessary for self and life, leading to more abundance in commodity supplies and wealth promotion. Further-

more, efficiency is a sign of economic success, which assures the faithful of their creed. It makes life more comfortable with more survival means. As efficiency means more resource availability, it facilitates having children and supporting them

2. Social justice or equity

In Islamic economics, social justice and equity are reached by availing the poor more productive capital to increase productivity and have more commodities to satisfy their needs.

3. Full employment

Full employment goes beyond protecting dignity, as it helps individuals be self-supporting and more capable of protecting their and their families' lives.

4. Sustainable and balanced growth

Sustainable growth guarantees the protection of the environment, which makes it possible for development to be sustainable. Such sustainability enables individuals to promote life, lineage, intellect, and wealth.

5. Economic stability

Economic crises imply a loss of economic resources and a decline in the standard of living for a large proportion of the population. Therefore, stability would make people more capable of promoting life, progeny, and wealth, as they can better avoid hardships associated with crises.

VI. SOCIAL PRIORITIES:

Provision for basic needs, starting with necessities⁵⁵, meaning food, clothes, shelter, and marriage; then merit wants⁵⁶, meaning health services and primary education; then ameliorative wants⁵⁷, meaning communications, transportations, in-house climate control, household appliances, etc.

VII. EXAMPLES OF TRANSACTIONS CONFLICTING WITH MAQASSED:

A. SELLING BEFORE POSSESSING

Some actions are correct in principle, i.e., when considered in isolation of Maqassed. However, once their consequences compared to

⁵⁵ (ضروريات)

⁵⁶ (حاجيات)

⁵⁷ (تحسينيات)

Maqassed are evaluated, they may be found to infringe on one of the Shari'ah objectives. An obvious example is to accept a minority Shari'ah's opinion of allowing to sell Salam goods before possession, may appear legitimate at first sight. However, when this sale is used as part of complex transactions that serve like derivatives through pure-risk trading, it would render the economy unstable.

B. FINANCE OF SPECULATIVE ACTIVITIES

Another example is the finance of speculative activities. When a supplier of funds advances finance to carry out speculative activities in the financial markets, it is commonly practiced under the name of "shares Murabaha," where the financed uses the funds to purchase stocks on the condition that he/she sells them in a few days. It is also equivalent to what some economists call the "Ponzi Scheme." Such speculative activities harm the economy, causing instability and contagion.

C. CREATION OF UNSUSTAINABLE DEBT

The debt created in an economy must be in balance with repayment capacity. When leverage is overused, the economy may face growth blockage or debt overhang. The economy would suffer ailments that inhibit its potential. To maintain debt sustainability, Islamic economics provides measures to keep debt within sustainable limits. The most important measure is to prohibit debt trading. It puts an end to negotiable debt instruments, particularly bonds, that allow for the multiplication of debt. Another measure is to mandate free rescheduling when debtors face unexpected insolvency, preventing them from payment of, e.g., Murabaha debt installment. People should not be allowed to incur debt beyond their capacity to repay. A limit can be set as one-quarter of household income as an example.

Moreover, Islamic finance contracts include debt- and non-debt-creating modes. The exclusive use of debt-creating modes of finance, like Murabaha and Bai' Bethaman Ajel, by Islamic banks and financial institutions would be against Maqassed. However, the balance between the sale and other modes of finance is a matter of policies for economywide implementation. For example, some banks and financial institutions might specialize in (domestic and international trade finance) through Murabaha and Bai' Bethaman Ajel. Additionally, other finan-

cial institutions might specialize in financing asset acquisition through *Ijarah* and *Istisna'*. Such specialization must not be hindered. Instead, policymakers should open the door for other institutions that would provide finance through equity modes to balance debt and equity finance.

Besides, all Islamic contracts provide finance through partnership, *Wakala*, or the use of commodity markets in cases when commodities are desired for themselves. When fictitious sale finance is used to camouflage *Reba*, as in "*Eina*" and "*Tawarruq*," debt can easily become unsustainable. When a debtor borrows through *Tawarruq* faces insolvency, his/her debt can be "repaid" using a loan provided through a new layer of *Tawarruq*. Multi-tier *Tawarruq* would become a symptom of unsustainable debt.

VIII. PARTNERSHIP OF FUQAHA' & ECONOMISTS

Despite some Shari'ah boards' opinions, Fuqaha', Shari'ah scholars, must respect the economic *Maqassed*. They must also consider the consequences of transactions on *Maqassed* as identified by economists. While Fuqaha' are in complete agreement with *Maqassed*, some may fail to recognize the ultimate consequences of transactions as violating *Maqassed*. The three cases above are good examples. In most cases, the reason is that to identify the violation of *Maqassed* correctly requires training in economics, which is unavailable to many Fuqaha'. Therefore, they must continuously refer to qualified economists' views for a final judgment.

Furthermore, Islamic economists find themselves equipped through their discipline to figure out the consequences of actions and whether they contradict *Maqassed* or not, without having to refer to Shari'ah scholars. It gives economists the upper hand in judging transactions' permissibility. Therefore, Shari'ah scholars should not singly issue Islamic economics rules without economists' leadership and participation. Rules must be derived through the joint efforts of both.

While Shari'ah rules must be obeyed, the Islamic economic system must contain incentives for their following. Once Shari'ah rules are embodied in the system, incentives should be automatically present and properly applied and enforced. For example, Islamic finance should pay higher rates of return on investment accounts than conven-

tional finance pays on time deposits, in contrast to their conventional finance counterparts, the virtue of fund owners in Islamic finance that they are taking risks⁵⁸.

We should not assume that the application of Shari'ah will automatically render benefits. It remains to be shown by economic analysis. Even if Shari'ah rules are made into laws, Islamic economic analysis will discover such rules' rationale.

IX. GENERAL VS SPECIFIC RULES

A. CONSEQUENCES (مآلات) OF GENERAL RULES

General rules are specified in detail in Qur'an and Sunnah as an indication that they are unchangeable by time or geography and must be strictly applied. Few details are left, which would be subject to ijihad. Like:

1. The Prohibition of Reba,

The prohibition of Reba has been repeatedly stressed as being mandatory. It is a severe transgression and something that must be avoided. The details on the institutional structure of a Reba-free monetary and financial system are left for economists' intellectual efforts.

2. The Imposition of Zakah

Being considered one of Islam's five pillars, Zakah has enjoyed detailed mention, especially the levy rates on the different kinds of wealth and incomes and the various disbursement outlets. Only a few details about the institutional side of how it is collected and disbursed to fulfill its purposes are left to economists to provide.

3. Ghabn and Gharar

3.1. Ghabn is cheating to convince the buyer that the sale object is worth more or the seller that it is worth less than the market price.

3.2. Gharar is (uncertainty, gambling) or pure risk trade.

The first rule sets honesty and transparency in trade while leaving the mechanism to determine the details of how much Ghabn (cheating) is taking place and how it should be addressed to economists. Sec-

⁵⁸ It may be contrary to practice, as return paid on investment deposits with Islamic banks stay close to the rates of interest paid on saving and time deposits. It can be related to malpractices.

ond, the general rule of prohibiting pure risk trading is established, while identifying pure risk gambles and operating standards of financial markets are left to economists to decide.

The rationale of such Shari'ah rules in economics can be discovered by analyzing their consequences. It would require the serious application of the rules, as their benefit is conditional upon their honest application. We will deal in the coming chapters with such a rationale.

B. CONSEQUENCES OF SPECIFIC RULES

Such rules are related to economic applications, like:

- How money is created,
- How financial resources are allocated,
- How Zakah is collected and disbursed,
- How money and capital markets are organized,
- How economic policies are designed,
- How the public sector is financed,
- How to deal with monopolies,

Such rules and many others are derived through economic analysis. The propriety of policy actions depends on how they lead to fulfilling Maqassad in economics. Consequences must, therefore, be defined to help judge policy propriety.

X. ECONOMIC PRINCIPLES AS AN INPUT

Islamic economics analyzes human behavior towards scarcity under the rules of Shari'ah. It accepts the correct economic theory conclusions as a start if they are theoretically proven and empirically verifiable. However, for being theoretically proven and empirically verifiable, they must be based on realistic assumptions, derived through sound deduction, and then empirically verified. This book lists examples of economic theories found unsound because of their lack of realism. The three aspects of acceptability, namely, assumptions realism, the propriety of deduction, and induction, would occupy a part of the debate between Islamic and conventional economics. A casual review of neoclassical economics's common critique would find reasons to treat neoclassical conclusions with a healthy grain of salt. Therefore, we will endeavor to scrutinize the relevant neoclassical conclusions before we propose to adopt them.

XI. PRIVATE PROPERTY

Private property rights in Islam are not absolute but subject to *Istekhlaf* rules. It means that property rights are two kinds. First, the permanent and unchanging title to all objects created by God. God permanently owns everything He created. Secondly, human beings' objects in a transitory fashion. The ownership of each proprietor ends with sale, death, and bequest. A proprietor would be authorized by God, as Khalifa or vicegerent, to use his/her property. On the day of judgment, people face accountability to how wealth is acquired, used, and the obtained results. The distinction between permanent and transitory ownership blocks the actions whose consequences in this lifetime harm social interests.

XII. DISPARITY BETWEEN PEOPLE'S INCOME AND WEALTH

Neoclassical economics argues that income and wealth distribution is tied to factors and commodities markets. Those with relatively more scarce talents and those who produce commodities with relatively higher demand enjoy higher prices for their factor services and the commodities they produce. They consequently enjoy higher incomes and wealth. Its double-barrel argument implies that income and wealth distribution is meritocratic, reflecting just payments for one's labor and products. It requires no redistribution, except for those incapable of working and therefore offer no factor services or useful commodities for sale. Redistribution to them would be a pure act of charity.

We can go along with neoclassical economics that people have different endowments of wealth, composed of a stock of physical and human capital. Its wealth could be partly inherited in endowed capital and enjoying high education at parents' expenses. Some people are born talented in music or fine arts. Others are talented in mathematics and physical sciences. Still, others can do relatively better in biological sciences. Some may be more oriented to social sciences, and so on. Moreover, talents must be developed through education and training. Its description of income and wealth distribution's initial conditions can be accepted *prima facie*.

However, we must add that amount of education and training a person obtains depends on financing. In some countries, free education is provided through high school. Other countries extend free edu-

cation to college and graduate studies. Some parents prefer to invest in the human capital of their children. Some students practically survive on scholarships while maintaining excellent grades.

Once people enter the factors market, they find different relative demands and supplies of factors of production leading to different factor prices. Factor income sometimes depends on the relative demands for and supplies of talents, but more often on power and market structure. An example: good lawyers, physicians, and engineers gain higher income due to unionization. The military, the judiciary, and security workers get higher pay in totalitarian regimes, as they become tools of dictatorship. We often find that the salary scale in private enterprises rises disproportionately, giving the higher echelon much higher remunerations than the lower echelons, reflecting the relative power of both. In other words, Earnings are often influenced by the market structure, political system, and power distribution. Factors incomes are often fortuitous. We can attest that a bellydancer's pay could be a multiple of a nuclear physicist's income.

In commodity markets, the same thing happens. Commodity prices may sometimes and to a limited extent depend on relative supplies and demands. People who produce relatively more scarce commodities, which enjoy relatively higher demand may or may not obtain higher prices. However, commodity prices are often influenced by the ability to search for better prices. Those who can afford to put more resources in price-search would obtain better prices for themselves, i.e., lower prices for buyers and higher prices for sellers. Besides, political power and market structure play a crucial role.

Interactions in the factors and commodities markets result in factor prices and commodity prices. Those prices will provide higher incomes to those relatively more favored by the political system or the country's power allocation. Therefore, it is not always like neoclassical economics claiming that markets favor people who produce relatively more scarce commodities, which enjoy relatively higher demand. Moreover, the surrounding circumstances in the factors markets related to the finance of education, unionization, and favoritism embedded in the political system take precedence in influencing the relative incomes of professions. People with higher wealth (quantity and quality of physical and human capital) find relatively more favorable conditions in the

factors market, like finance and unionization, and more favorable conditions in commodity markets, with the ability to obtain more favorable prices as buyers or sellers. It can be enforced by having access to more political power. They get richer. Others with lower wealth get poorer. The claim to meritocratic income distribution is hard to support. The gap between incomes and wealth is liable to get wider in a market economy. The only solution to keep it narrow is to exercise redistribution of some form regularly.

GRADUAL & TRANSITORY FATWAS

Gradualism is a general rule in applying Shari'ah, conditional upon forming implementation policies attached to timetables. Such a requirement is to guard against procrastination. Gradualism may require transitory "*fatwas*" to allow for transitory exceptional rules. Since the dawn of Islamic finance, some presumably transitory fatwas have been issued. However, their temporary nature has been forgotten. We, therefore, must insist that transitory fatwas must be dated.

A transitory fatwa example:

Public stock companies can hold debt up to 30% of their assets. The fatwa was issued many years ago. Some expected that the permissible percentage should be gradually reduced. Nothing of this has happened until now.

TOOLS OF ANALYSIS IN ISLAMIC ECONOMICS

I. NATURE OF HOUSEHOLD AS A UNIT OF ANALYSIS

When examining the neoclassical methodology, we have found that taking a rational utility-maximizing individual in microeconomics and a representative agent in macroeconomics as a unit of account could be both unrealistic and symptomatic of strong reductionism. Since Islamic economics cannot subscribe to instrumentalism, strong reductionism, and unbounded rationality, we must, therefore, reinvent our unit of analysis.

Islamic economics is that branch of economics that studies human behavior towards scarcity under the rules of Shari'ah. It deals with the behavior of human beings whose actions reach out for interests beyond economics, like social, religious, and political goals. Our unit of analysis would have to be a real human being, who is neither super calculative beyond imagination, nor so utilitarian to always compare marginal

benefit with marginal cost in every move. His economic actions are influenced by actions aiming at other spheres of interest. For example, a person may wish to reinforce his family ties, through gifts, donations, etc. he may wish to extend his good deeds beyond his lifetime by establishing Awqaf to produce public serviced, e.g., education health services for the benefits of his community.

As Schlicht (1985) cited, Carl Menger developed the idea of an economic person or "*homoeconomicus*" in 1883. It became the neoclassical unit of analysis, that was later found to be endlessly calculative and suffers from extreme rationality. Some Islamic economists suggested replacing him/her by *homo Islamicus* Farooq (2011). Presumably, the homo Islamicus follows a pattern of Islamic behavior. He will not indulge in unbounded rationality or utility maximization, but he honestly and strictly adheres to Islamic rules in his behavior. Since Islam envisages a society composed of both Muslims and non-Muslims, one does not have to be a Muslim to follow, e.g., the rules of Islamic finance. It is better to assume that the individual opts to follow Islamic rules for economic activities, regardless of his belief. We can just call him *homo Ordinarius* who has bounded rationality and carries on the process of sufficing instead of maximizing.

In Islamic economics and contrast with neoclassical economics, we must also admit emergent behavior as our ordinary person or homo ordinarius interacts with others at the market and the economy-wide levels. We can, therefore, not claim simple aggregation. Instead, we must look into other possibilities. It would be one of the challenges of the new discipline.

II. SELF-INTEREST

One of the economic man's presumed characteristics is that he seeks what promotes his self-interest. Some consider him as being selfish (Khan, 1989). Meanwhile, Siddiqi (2001) claims that pursuing self-interest does not necessarily mean being selfish. Therefore, self-interest may still imply a broader scope of interests than being selfish. Consequently, we will assume that our homo ordinarius will be a person with bounded rationality, satisficing behavior, and having both self and altruistic values.

DEDUCTION AND INDUCTION

The process of deduction, pioneered by Ibn Rushd, is to introduce assumptions, axioms and logically derive postulates as a start to describe the problem on hand. Its description is supposed to be complete and realistic so that the researcher could focus on concluding at a later stage. An attempt is made to use logical arguments to draw principles, which must be in the form of testable or refutable hypotheses.

I. A THEORY OF BEES AND FLOWERS

As an example, we would like to theorize about the relationship between bees, flowers, and fruit. We start with axioms and assumptions. Axioms must be intuitively obvious, and assumptions should be realistic and capable of describing our theory's domain, i.e., the phenomena to be explained. The first axiom is Plants require water (rain/irrigation) to grow. Second, bees feed on flower nectar to multiply and produce honey. Third, bees participate in pollinating flowers. Finally, pollination is necessary for fruit production. Assumptions must be realistic and sufficient to describe the domain of our theory. Assumptions must be realistic and adequate to describe the domain of our theory.

We will, therefore, assume that we live in an environment that has: fruit trees, flowers, and bees. It rains and experiences seasonal climate and varying weather. The quality and the location of land are ignored for simplification. Based on these axioms and assumptions, we can postulate some critical relationships consistent with assumptions. Such postulates introduce the important relationships between our variables. It is often necessary to use logic to argue for our postulates. They are useful in deriving the scientific principles we would ultimately prove.

Therefore, we can postulate that the abundance of flowers enables bees to collect more nectar and produce more honey. Rainfall & warmth allow more flowers to grow. More pollination would lead to more fruit production. Two principles, to be used as testable hypotheses or refutable statements Logically deduced from assumptions/ axioms /postulates. More rain with warmer temperatures leads to, first, higher production of honey. Second, it brings in an increase in fruit production. These two hypotheses can be tested empirically.

II. FISHER'S DEBT DEFLATION THEORY

An interesting example of a theory is Irving Fisher's debt deflation hypothesis (1933), which neoclassical economists ignored to see it coming true during the following crises, ending with the Great Recession of 2008. We start by assuming that (i) the financial market is full of equity- and debt-based assets (stocks and bonds). (ii) Under uncertainty, which means total ignorance about the future, financial asset prices fluctuate. (iii) Speculators take short-term (short or long) positions on such assets in the hope of making a profit. (iv) The financial market allows futures contracts to postpone both payment and delivery. (v) Meanwhile, brokers find opportunities to make money through lending speculators at a rate of interest. (vi) Speculators take advantage of gambling with borrowed money, which amounts to a Ponzi Scheme. The last six assumptions form an honest and realistic description of the capitalist economy's financial market.

We can then postulate that prices are either below or above equilibrium because of uncertainty, but never a balance. It may lead speculators to be overconfident, and therefore they overspeculate. Over speculation leads to over-borrowing, with an acceleration in the volume of debt. Prices that have moved above equilibrium, motivating over-speculation, start coming down. Speculators rush to distress selling to repay their debt, pushing prices even lower. The debt/asset value ratio rises with falling prices, increasing the debt burden. It is also associated with tighter liquidity. Bankruptcies multiply, profits, investment, growth, and employment all decline. The end is a recession.

III. TESTING HYPOTHESES (INDUCTION)

The conclusions of each theory take the form of testable and falsifiable hypotheses. In our first example of the theory of bees and flowers, we can start by collecting data on temperature and rainfall during the last, say, twenty years. Furthermore, we collect data on harvests of honey and fruit. We can determine whether we can succeed or fail to reject such a hypothesis regarding the positive relationship between rainfall and temperature on the one hand and honey and fruit harvest on the other. On Fisher's theory of debt deflation, a clear-cut hypothesis would be the relationship between private debt, measured as a ratio to GDP, and growth and employment levels. Another hypothesis would be the relationship of the volume of speculators' borrowing, measured

as an index number or a rate of growth, divided by asset prices, similarly measured on the one hand, and the frequencies of speculators' bankruptcies /or the trend in asset prices.

As explained previously, an essential part of the induction process is the ability of empirical tests to be replicated. The assurance of replication means a quality assurance of the empirical test. Without such assurance, the theory remains to be lacking credibility.

Necessary for all sciences are both processes of deduction and induction. Once a testable hypothesis passes the deduction and induction processes, it becomes a scientific principle. It stays valid until new evidence proves the contrary. Such evidence would be either a better formulation of the theory that produces different results or a more powerful empirical test that provides more robust results.

Another way to test hypotheses is to use lab experiments. It leads to discussing experimental economics, which will be done later.

REALISM AND ISLAMIC ECONOMICS

The question of realism requires special care in Islamic economics, where people's behavior towards scarcity is investigated under the rules of Shari'ah. It should imply that the rules of Shari'ah are embedded in the system in such a way that would make them effectively enforceable. The experience of Islamic finance's contemporary application has been disappointing. The role played by Shari'ah boards has so far amounted to Islamic banks and financial institutions being self-regulated. The main reason is the absence of Islamic finance rules from commercial and banking laws and regulations and the indifference of monetary authority to ensure that the Islamic finance paradigm is being honestly applied.

Besides, some rules can be easily written into laws and regulations, like property rights, inheritance rules, collection and disbursement of Zakah, establishment, and management of Waqf, and Reba's prohibition Ghabn, Gharar, debt, and pure risk trading. However, the avoidance of stinginess and over-indulgence in consumption and keeping a measure of moderation cannot be written into laws. The latter rules require safeguards and incentives for their implementation and the creation of social awareness through the support of the educational system and social pressure.

Therefore, it is possible to assume that all Shari'ah rules that are amenable to be written into laws and regulations are embedded and enforced in the system. We will also assume that the education system and social pressure would gradually transform the rules incapable of being written in formal laws and regulations into social conventions.

EXPERIMENTAL ECONOMICS

Since the 1980s, experimental economics expanded tremendously, adding economic theory and policy contributions. However, experimental economics remains controversial. Some economists claim that experimental methods' growing use transforms economics into a genuinely empirical science (Bardsley, 2010). They identify limitations to its progress as, first the need to sharpen the ways experiments are conducted, ignoring the need to consider the nature of objectives in experimental design, and the tendency to apply the principles of good practice in theoretical modeling to experimental design.

Experimental Economics has its proponents (Eckel and Gintis, 2010) and its skeptics (Binmore and Shaked, 2010). Proponents believe that experimental findings indicate that the standard neoclassical model fails to predict a considerable range of strategic behaviors widely observed in the laboratory, particularly under conditions where *normative behavior* is prevalent in everyday social life. They justify this far-reaching claim by an impressive and continually growing body of evidence from experiments. Skeptics believe that experimentalists place too much enthusiasm on their new methodology.

Undoubtedly, Islamic economics must venture into using this new tool. It faces two critical challenges. First, experiments are designed in games where players make decisions within a predefined sphere. It requires creativity in games designed around the issues relevant to Islamic economics. Second, playing such games would require payouts to participants. It would be an added expense to research and must be met by additional sources of finance.

MORAL JUDGMENT & ETHICS

Islamic economics aims to provide an integrated analysis of economic activities under the adherence to Shari'ah, a moral structure based on beliefs, and the institutional structure of the Islamic economic system. Economics has two schools of thought in methodology. The

school of positive economics claims that analysis should be devoid of ethics to remain unbiased. However, this type of positivism does not exist in economics. Ethics are explicitly mixed with the methodology for the kind of assumed household. Such households are considered maximizing certain psychological (e.g., utility) and material (e.g., wealth) goals.

Economic agents' attitudes in mainstream theory have already been set from the beginning, reflecting undeniable moral values. The analysis cannot, therefore, be considered positive by any means.

Moreover, the way such a human agent makes decisions is extremely calculative as a consumer or producer. It, in turn, reflects overly materialistic moral values. The third source of moral judgments in mainstream economics comes during the development of economic policies. Here, mainstream economics focuses on efficiency goals, leaving equity, sustainability, and stability far behind. The fact that market capitalism allows pure risk trading directly implies condoning gambling. Moreover, the finance of speculations, including the purchase of pure-risk assets, implies condoning Ponzi schemes through which other people's wealth can be plundered without their consent.

The Islamic economics school recognizes the impossibility of isolating analysis from ethics. The economic agent embedded in Islamic economics does not seek exclusively materialistic goals, nor such agent is exceptionally calculative. Furthermore, economic policies consider equity as an essential objective of economic policies.

The proponents of the normative school, which would presumably be sympathetic to the Islamic economics approach, include Joan Robinson, who objected to the analysis based on pure utilitarianism, the claim to the invisible hand, and supported the call by Kenneth Arrow to adopt a moral obligation (Osadchaia, 1961 and Feiwel, 1978).

The positive analysis assumes free markets, *laissez faire*, utility, and profit maximization. *Homoeconomicus* is selfish and utilitarian. Kenneth Boulding was reported to have said he would not marry his daughter to such a man.

Economics was never devoid of ethics from the beginning. It adopted utilitarian values and selfishness, which led to conflict and rivalry, with the extremely rich on the one hand and the extremely poor on the other.

Suppose we consider that economics is a social science that studies individuals' behavior toward the phenomenon of scarcity and concludes that the best attainable allocation of resources is the safest way to deal with this phenomenon. In that case, human behavior cannot be isolated from moral boundaries. The claim to positivism is, therefore is neither justifiable nor realistic.

Interestingly, James Alvey (1999a, 1999b), the economist from New Zealand, reminds us that economics is part of the philosophy of ethics and reinterprets Adam Smith and Western economists before the twentieth century as advocates of moral economics. Economists' rejection of ethics during the twentieth century is not consistent with its history and economic analysis development, based on assumptions that have substantial moral implications. It is an attempt to mimic natural sciences and their use of mathematics. Nonetheless, natural science deals with matter, while economics deals with human behavior.

Jacqueline Best and Wesley Widmaier (2006) provide an example of the connection between economics and ethics. The division of economics into two branches: microeconomics and macroeconomics, is an important manifestation. Microeconomics focuses on the interest of households and firms. Macroeconomics is concerned with society's interests. The classical school emphasizes the interest of individuals and the single state alone. Meanwhile, Keynes's most attention goes to policies that promote the social interests that exceed the sum of individual interests.

Several modern economists have addressed the absence of ethics from the analysis. Others have constructed monetary measures of the ethical factors considered by agents, e.g., Freitas and Wagner (2007, 2009), resorted to developing economic behavior models that include ethical aspects.

The methodology of Islamic economics focuses on providing economic analysis under the provisions of moral obligations derived from the Shari'ah and formulated by former scholars. The latter include judge Abu Yusuf, Ibn Abidin, Al-Shatby, Ibn Taymiyah, and Al-Ghazali, who learned from the founders of Islamic schools jurisprudence.

An example of combining economic analysis and moral judgments in Islamic economics can be drawn from monetary and financial eco-

nomics. Muslims believe that lending at a rate of interest implies massive injustice to individuals and society. Islamic economists came to provide a detailed analysis and to put the economic rationale of ethical behavior. Interest-based lending deprives individuals and communities of seven crucial economic advantages, which will be elaborated on in another chapter.

To conclude, economics began as a social science intertwined with ethics. Attempts have separated them, but it was absurd because it did not achieve absolute impartiality but committed economics to utilitarian ethics and selfishness. Islamic economists provide a genius example of building economic analysis on Islam's moral codes.

Shari'ah scholars have taken the lead in formulating Islamic finance's ethical rules. Islamic economists, through economic analysis, provided many examples of morally defective transactions, based on their economic consequences, for example:

1. Any transaction that boils down to the sale of a sum of present money for a larger sum of future money, like "Tawarruq" and 'Einah," would be considered unethical. Such transactions would often be used as ruses to circumvent the prohibition of Reba.
2. The sale of monetary debt for a value that differs from its nominal value would represent present money for future money.
3. Finance trading in securities for speculation (not investment). Such finance would cause speculative activities to dominate the financial market, causing immeasurable harm to the economy.
4. Finance that exceeds the customer's capacity to repay would lock him into debt for life. It would ultimately be a sort of destructive finance, i.e., finance aiming to destroy the fund user financially.
5. Funding that encourages conspicuous consumption, extravagance, and luxury
6. Funding luxuries before basic needs are met.
7. Funding for any activities or exchanges that harms all living organisms and the environment

EQUILIBRIUM VERSUS DISEQUILIBRIUM ECONOMICS

I. WHY EQUILIBRIUM ANALYSIS IS UNSATISFACTORY

Equilibrium, as a concept, has been borrowed from physics. However, reaching equilibrium would require certain conditions that may either be unacceptable or unrealistic. Market equilibrium requires the

fulfillment of the Sonnenschein-Mantel-Debreu conditions. It requires that individuals have the same preferences, which amounts to only one market participant. It also requires homothetic commodities, of which a household consumption stays at the same proportion of income. It amounts to one commodity only. Therefore, market equilibrium is a myth.

General equilibrium requires Walras conditions. First, the exchange must be centralized, i.e., one market for all commodities and traders chaired by one auctioneer. Second, no false trading, meaning that trading at disequilibrium prices is prohibited. It implies that general equilibrium in itself is also a myth.

Larry Levine (2005) insists that the notion of equilibrium in neoclassical microeconomic theory is unsalvageable. If equilibrium were a real-world phenomenon, the real world would not have had the Great Depression of 1929 and the Great Recession of 2008. The economy would continuously stay at equilibrium or rapidly return to equilibrium, with full employment, low inflation, and sensibly priced assets (Keen, 2011).

Market capitalism has been permanently in disequilibrium in the real world, with crisis after crisis. Reality carries an economy that is always in disequilibrium, experiencing cycles one after the other. Economists favor dealing with a stable equilibrium. If a deviation from the equilibrium price were to occur, an excess supply would arise if the price exceeded equilibrium. Alternatively, an excess demand would arise if the price were below equilibrium. Disequilibrium would cause ensuing *dynamic processes* in supply and demand, leading them to converge at the equilibrium price. Time is needed for *dynamic processes* to take their course towards adjustment. Economists usually assume that markets would adjust instantly. Short-term equilibrium is generally ignored.

The neoclassical concept of equilibrium has far-reaching implications when we consider equilibrium occurring in all markets simultaneously, i.e., the price in every market equates to its demand and supply. Any change of price in one market will affect demand in many other markets, as each commodity has many complements and substitutes. If we were to follow the neoclassical logic, if a price in one market deviated from equilibrium, many markets would follow by experi-

encing disequilibrium. Trade at disequilibrium prices would undoubtedly occur, as no one knows the equilibrium price in the decentralized exchange's real world. Trading at disequilibrium would cause sellers who sell at prices higher than equilibrium to gain real income at the expense of those selling at prices below the alleged equilibrium. A change in income distribution would ensue, causing further changes in demand in many markets, playing havoc, and preventing equilibrium from taking place.

II. EQUILIBRIUM ANALYSIS AND FINANCIAL MARKETS

Farmer and Geanakoplos (2008) list several instances where equilibrium analysis fails to explain economic data. They list several others where disequilibrium analysis succeeds. Before doing so, the authors remind us of the many objections raised against utilitarianism and extreme rationality. Equilibrium theories cannot explain price volatility, which is a sign of disequilibrium rather than equilibrium. Under equilibrium, arbitrage is supposed to disappear, which never does, particularly in financial markets. In the same markets, equilibrium models cannot explain clustered volatility. Clustered volatility means that substantial and strongly temporally-correlated changes in price movements' size at different points in time. The theory of market (arbitrage), which is an equilibrium theory, proves the presence of efficiency by claiming that traders would always be able to identify and exploit all profitable opportunities in markets. As a result, the trading activity would change prices to remove such options. However, experience in financial markets indicates the persistence of profitable opportunities over long periods (Farmer and Geanakoplos, 2008). The two authors emphasize the need for a non-equilibrium theory to explain financial market developments.

III. SIMPLE VERSUS COMPLEX DYNAMICS

Modern economies do not experience simple dynamic behavior. They usually experience complex dynamics, including irregular fluctuations, interacting and overlaying waves of development, structural and institutional changes, and evolution (Day 1985). Such complex dynamics are critically important because they prevent economies from converging to a steady state. Fluctuations have become more common, with alternating periods of growth and decay. Economic change is be-

coming more erratic and less predictable (Day, 1985). Instead of giving up the concept of equilibrium, economists have used *perturbing exogenous shocks* to explain instabilities that fall within cycles' regular patterns. Such shocks have come in two kinds. The first is structural changes, like migration, systemic political and systemic conversions⁵⁹, and technological change. The second type includes random shocks, e.g., weather, government fiddling with policy variables, earthquakes, severe storms, and the like. Economists use the concept of exogenous shocks to make the ever-occurring complex changes consistent with their equilibrium analysis and their convergence postulate (1985).

The road of disequilibrium analysis, taken by the neoclassics, viewed from the purely theoretical vantage point, seems rather unsatisfactory. It is based on two ad hoc assumptions. First, convergence, i.e., the economy once deviates from equilibrium, tends to converge to the same equilibrium. The second is of exogenous shocks, i.e., the source of disturbances come from external sources. Day (1985: 47) points out that economists have not shown us how an economy would behave when structural changes are constant (or some other simple function of time) and when random shocks are absent altogether. Economists have not clarified whether their convergence postulate holds or not and under what conditions. If it does not hold, complex dynamics will persist. It is an example of how neoclassical economists use assumptions (like the convergence hypothesis) to avoid undesirable or unmanageable results.

Franklin Fisher (1989) suggests developing a theory of how economies behave in disequilibrium as a remedy. He proposes a model in which agents are aware of being in disequilibrium and act on arbitrage opportunities. It appears to be only possible in a perfect world. With costly information, awareness of disequilibrium, and the associated arbitrage opportunities would not be realistic.

IV. EQUILIBRIUM AND HARMONY

Stellian (2019) presents two essential arguments. First, equilibrium is a concept beyond the equality between demand and supply. It is

⁵⁹ Political structure changes include experiencing military coups that replaces democracy with totalitarianism and vice versa. Economics structural changes can be exemplified by the transfer of the Russian economy from communism to capitalism and the switch of parts of the Chinese economy from communism to market economy.

perhaps a response to what we have explained above in discrediting the derivation of the neoclassical market demand and supply curves. Stallian prefers to perceive equilibrium as a state of harmony between agents (households and firms) decisions in a decentralized economy. With decentralized decisions, agents have no information about others' decisions while making their own decisions. Removing the Walrasian auctioneer, the neoclassical theory of value has absolutely nothing to ensure the mutual compatibility of agents' decisions. The market economy's ability to produce the *Stallian equilibrium* would undoubtedly be impaired.

Once the money is introduced, Stallian redefines equilibrium from a post-Keynesian view as the fulfillment of firms' expectations coincides with household decisions concerning monetary flows between firms and households. Similarly, disequilibrium implies that some firms' expectations have not been fulfilled. Uncertainty viewed by Keynes as total ignorance about the future entails no basis for households and firms to calculate future monetary circulation probabilities. Keynes' uncertainty makes disequilibrium, and not equilibrium as the economic norm, as firms' expectations, are never fulfilled (Stallian, 2019).

EXAMPLES OF DISEQUILIBRIUM ANALYSIS?

I. CHAOS AND COMPLEXITY THEORISTS

The concept of chaos was first discovered by the French mathematician Henri Poincaré, 1899. Chaotic models cannot be understood by just writing down their equations. They must be simulated and analyzed numerically. It was simply not possible before computers. Relationships between system elements are nonlinear. Complex systems can 'self-organize.' Lorenz's model of the relations between displacement and temperature lead to chaotic behavior on the surface. Behind which lies the organizing force of "strange attractor." Complexity theorists argue that the economy demonstrates similar attributes, which causes cycles.

II. ECONOPHYSICISTS & FINANCEPHYSICISTS

Econophysics adds contribution such as (Goodwin 1990, 1991), (Mandelbrot 1971, 2005), (Lorenz 1987a, 1987b, 1989), (Ormerod 1997, 2001, 2004); (Ormerod and Heineke, 2009), (Chiarella and

Flaschel 2000), (Chiarella, Dieci, et al. 2002), (Chiarella et al. 2003), by applying physicists techniques and their empirical approach to economic data.

Physicists developed a vast array of techniques using an empirical approach, without assuming that the physical processes occur in equilibrium. The concept of equilibrium itself is more richly specified. These techniques enabled Econophysicists to make substantial progress in understanding how financial markets in particular operate. They used models that capture the *fat tails* bedeviling asset-price data and lie outside the predictive capacity of neoclassically inspired models. Econophysics has many substantial aspects as a new school of thought.

Many complexity theorists in economics started out doing PhDs in physics, biology, or mathematics, later delved into economics out of curiosity. The leading practitioners of chaotic models are well versed in dynamics. They usually are very competent in mathematics, far more so than most neoclassical economists.

They have had a significant impact on the profession. Technical superiority has enabled Econophysicists to take the math 'big stick' out of neoclassical economists' hands. It led to a generation of Econophysicists, whose math and computing is more rigorous and extensive.

Like any school of thought, Econophysicists have weak points. They lack appreciation of the history of economic thought. They often generate models combining incompatible streams as the IS-LM and rational expectations by authors who are rarely aware of these tools' origins. They developed a rich and empirically based analysis of financial markets. Their statistical analysis (using Power Law distributions and Tsallis-statistics) beats neoclassical models. Their success led them to neglect the economic side of their work part. Sometimes, earning the name of Finaphysics

They occasionally introduce one of the most potent weapons in their arsenal that has no place in economics, namely the conservation laws, that are applicable when, for example, the amount of mass and energy in the universe – is not unaltered by the physical processes. Still, its distribution and nature may alter 'the change in the amount of "X equals zero.'" It has been a source of many of the most significant advances in physics, including the derivation of relativity theory. However, we can find no equivalent economics concepts (Keen, 2011:459).

Economics belongs to the class of dynamical systems known as *dissipative* rather than *conservative*. Unfortunately, conservation laws were introduced into wrong areas, like the analysis of money (Patriarca, Chakraborti, et al. 2004; Ding, Xi et al. 2006), the distribution of wealth (Gallegati, Keen et al. 2006). We expect such misunderstandings to dissipate by the time, given physicists' innately empirical focus.

Therefore, we can conclude (Keen, 2011) that the techniques used by complexity model builders in economics enrich economics with concepts from other disciplines. The economic obsession with equilibrium appears old-fashioned to these mathematically literate economists. It could eventually bring an end to static thinking. If statics expire in economics, neoclassical economics will follow since its way of thinking is unsustainable in dynamics. Econophysics may be a harbinger of real change in economics after sixty years of effective ossification.

III. EVOLUTIONARY ECONOMISTS

The economy can be viewed as an evolutionary system that experiences continuous changes caused by households, firms, policymakers, or other external factors. Therefore, we can understand Thorstein Veblen's (1898) query, over a century ago, of *Why is economics not an evolutionary science?* Veblen questioned the neoclassical premise, espoused by his contemporary, Leon Walras (1874), that the physics of equilibrium thermodynamics can be an analytical model for economic systems. Veblen has simply called into question the premise that economic systems do, indeed, tend to equilibrium. Veblen's query has given rise to evolutionary thinking in economics.

Nightingale (2000) and Laurent and Nightingale (2001), who consider Darwinism a 'universal' basis of science, claim that the basic building blocks of the evolutionary way of thinking are: diversity, the environment, and adaptation. Diversity provides an assortment of possible *solutions or forms* to environmental challenges. The environment interacts with diverse forms. Its structure naturally favors some forms to others. The environment may be altered by the differential survival of some forms and others' disappearance. Forms or species that survive pass their characteristics, which have become relatively more dominant to the next generations.

Economic diversity is manifested in the heterogeneity of households, firms, and policymakers on the one hand and the variety of commodities on the other hand. Adaptation manifests itself in new products and the changes in tastes to adopt such products, which take place endogenously. The economic system is the environment. It is endogenously created by the actions of myriad its three participants of households, firms, and policymakers.

Evolutionary economics, therefore, considers the economy as an evolutionary system. Its proponents are aware that economic changes result from intentional acts of the three types of economic system participants. Meanwhile, changes in the environment are not directly related to human actions.

The weaknesses of the evolutionary approach to economics are that, once the economy is treated as an evolutionary system, everything can change. Economists have tried to impose some (sometimes desirable) market order, using the assumption of *ceteris paribus*. Such an assumption, while it is admittedly an illusion, is often preferable to reality. Once economists acknowledge reality, they are forced to abandon the structure. However, evolutionary modeling maintains the structure, as shown by, e.g., genetic interactions. Economic systems have no comparable entity to the gene or biological interaction processes. They must use some tools consistent with evolution and suit economics; as a Computer simulation, Economists need to use some programming skills for evolutionary modelings, like NetLogo and Repast⁶⁰. Fortunately, such skills are far more accessible to new generations.

IV. KEEN'S ADVICE TO YOUNG ECONOMISTS

Don't let lecturers teach concepts of equilibrium and stability without putting the limelight on disequilibrium and instability, as well as its apparent examples of the Great Depression and the Great Recession, as signs of the many failures of neoclassical economics. Challenge your teachers on why neoclassical economists exclude money and debt from their macro models, why they pretend to model dynamic processes using comparative statics, and so on.

Organize with your fellow students to get a voice in designing the curriculum. There are much better resources to guide you about what

⁶⁰ (ccl.northwestern.edu/netlogo/) and (repast.sourceforge.net/)

an alternative curriculum should include. Notably, our graduate program in Islamic economics at ASBU is specially designed to avoid such mistakes. Students of economics are also advised to take courses in system dynamics⁶¹. They can benefit from becoming familiar with programs like QED⁶² and NetLogo. Build your dynamic models, working from the leads I've given in this and Keen's book (2011) book.

⁶¹ (en.wikipedia.org/wiki/System_dynamics),

⁶² (www.debtdeflation.com/blogs/qed/), Vensim (vensim.com/),

CHAPTER VII: DISSATISFACTION WITH THE NEOCLASSICAL ECONOMICS

THE CALCULUS OF HEDONISM

The neoclassics represent the Consumers' side of the market by a downward-sloped demand curve showing an inverse relationship between price and quantity demanded. It is merely *the law of demand*. Meanwhile, producers are represented by an upward-sloping supply curve showing a direct relationship between price and quantity supplied. It is only *the law of supply*. The intersection of the demand and supply curves represents an *equilibrium point* considered by neoclassical economists as a natural outcome that is best for all parties, i.e., it is an *optimum*. Such an equilibrium is stable and self-correcting. Any deviation from it would trigger forces that bring the market back to equilibrium.

A price that is higher than equilibrium triggers excess supply pushing the price back down to equilibrium. A price below equilibrium triggers excess demand, pushing the price back up to equilibrium. The process of the price deviating and then returning to equilibrium is assumed to happen instantly, to that the existence of disequilibrium is ignored. Outside intervention, by, e.g., setting a minimum price or levying a sales tax, would cause the equilibrium to deviate from the optimum level of output. In turn, it reduces both producers and consumers' welfare as they both receive a lower *surplus*.

The downward-sloping market demand curve is obtained by a horizontal summation of individual demand curves. Similarly, the market supply curve is the horizontal summation of individual supply curves. Implicitly, as the Sonnenschein-Mantel-Debreu, SMD conditions have shown⁶³. The horizontal summation of the individual demand curve

⁶³ These conditions deal with the problem of aggregation from individual to market demand. It was discovered by William Gorman (1953) and came to be known as Sonnenschein-Mantel-Debreu [SMD]. The conditions have been independently developed by Sonnenschein (Shafer and Sonnenschein, 1982) Mantel and Debreu. The derivation of a market downward-sloped demand curve in the neoclassical theory of demand is possible only when the Sonnenschein-Mantel-Debreu conditions apply in two aspects. First, all consumers have the same preference map, boiling down to going back to the case of only one consumer. Second, preferences do not change with income, meaning again that there is only one consumer. Aggregation

amounts to having consumers with similar preferences with homothetic commodities. As Sraffa has shown, the supply curve is based on the postulate of diminishing returns. It is based on the assumption of factories built with no excess capacity. In the real world, factories are constructed with extra capital as a reserve to be used for times of high demand.

I. UTILITY THEORY

The individual demand curve owes its philosophical underpinning to Jeremy Bentham, the founder of utilitarianism. Neoclassical Utilitarians argue that household utility emanates from the satisfaction gained from using its income to consume bundles of commodities that give the greatest personal pleasure. The more a certain good is consumed, the less additional utility it provides, following the *law of diminishing marginal utility*⁶⁴.

Once a second good is introduced, the gained utility for both can be expressed in a 3D graph that can be used to generate indifference curves by connecting all the points of the same heights (number of utils) along that curve. The household gets the same satisfaction or utility regardless of what bundles it chooses to consume along the indifference curve.

However, measuring marginal utility is *technically impossible*, especially when we talk about psychological feelings with no physical measure. Economics has no tools to measure human feelings. Any theorizing in this respect would take the analysis beyond economics to another field.

Furthermore, once we move from combinations of two goods used in the above graphs, e.g., to three or four or more, the graphic presentation becomes impossible. Utility theorists have been forced to drop the three-dimensional representation and focus on indifference curves.

is therefore strictly possible if there is only one consumer and only one commodity. Obviously, this is not what we mean by aggregation at all.

⁶⁴ For example, one unit of a commodity – say, 50 grams of cheese – yields 8 utils of satisfaction to the consumer. 100 grams of cheese yield 15 utils, so that the second slice of cheese contributes seven additional utils to the consumer's satisfaction: one less than the first slice, but still a positive quantity. Three slices of cheese yield 19 utils, so that the change in utils from consuming the third banana declines to 4 utils.

Moreover, they had to give up the claim to cardinal utility measurement in favor of ordinal utility. It led them to the *modern consumption theory*. They turned their attention to the properties of the indifference curves. To remain consistent, indifference curves or their underlying preference ordering must fulfill four rules:

1. Completeness:

If confronted with a choice between two different combinations of goods, a consumer can decide which he/she prefers (or can determine that he/she gets the same degree of satisfaction from them, in which case he is said to be indifferent between them).

2. Transitivity:

If combination A is preferred to combination B, and B is preferred to C, then A is also preferred to C.

3. Non-satiation:

More is always preferred to less. If combination A has as many of all but one commodity as B and more of that one than B, then A is necessarily preferred to B.

4. Convexity: The marginal utility a consumer gets from each commodity falls with additional units so that indifference curves are convex in shape (shaped like *a slippery dip*).

Such properties have been considered as axioms for preference ordering that describe consumers rationality according to the neoclassics (Samuelson, 1948)

II. CONSUMERS CHOICE

The neoclassics aimed to explain how consumers allocate their expenditures among different commodities to reach the most favored combination. They introduced a budget constraint limiting the range of choice to those attainable within the household income. Since total utility increases with consumption, households should consume infinite amounts of commodities. The imposition of an income constraint on the indifference curves avoids infinite consumption.

In a hypothetical world of two commodities, the income constraint can be graphically represented by a straight line connecting the maximum amount purchasable by all income of one good, measured on one axis to the corresponding point for the other good measured on the other axis.

III. SUBSTITUTION EFFECT

The substitution effect measures the change in the quantity demanded due to a change in price while holding income constant. It is a movement along the demand curve of the individual consumer. It is associated with the income line's outward movement and can be positive or negative depending on the indifference curve's shape. Neoclassical economists derived the individual demand curve by nominally neutralizing the income effect as in the *Hicksian compensated demand curve* (Hicks, 1956, 1986; Machlup, 1957). Hicks' ingenious idea of shifting the income constraint line to show the income effect fails to show how such an effect can be practically separated from the substitution effect. Hicks' experiment may be diagrammatically clever but appears impossible practically. Furthermore, once a price change admittedly causes changes in incomes, it would affect consumers' incomes differently, depending on the proportions of their incomes spent on the commodity in question. It leads to a change in income distribution, violating the demand curve derivation's basic condition.

The income effect could now explain a rising individual demand curve. The income–consumption curve is derived from the tangency points of indifference curves with the various budget constraint lines, with prices held constant, as income increases shifting the budget constraint out in parallel to itself. Classical economists say that the resulting plot – known as the *Engel curve* – shows a consumer maximizing his utility as his income rises. The Engel curve can be used to distinguish between four kinds of commodities, which include normal commodities, necessities, inferior commodities, and luxury commodities. It would be evaluated later.

MARKET DEMAND: FACT OR MYTH?

Neoclassical economists dealt lightly with the problem of aggregation. Such a problem results from the fact that individuals in the real-world exhibit strategic behavior. In particular, both consumers and suppliers carry on price searching activities. If such behavior were recognized, the concept of summing up the total quantity demanded by overall market participants becomes ludicrous. Even within the highly unlikely case of perfect competition, the neoclassics had to add some heroic assumptions to justify the market demand curve's derivation

through a simple horizontal summation of the individual demand curves.

The aggregation of individual demand curves into a market demand curve through horizontal summation has been made legitimate by making certain heroic assumptions. First, all people have the same tastes. Second, each person's preferences must remain the same as his/her income changes. The assumption of similar tastes practically reduces the number of households to one, as it is almost impossible to have two people with the same preferences. Caplan (2003) surveyed the works of personality psychologists in the last decade of the twentieth century and found that they had produced a robust collection of stylized facts about human preferences. Their consensus was that people's preferences are *empirically stable* but are *far from identical*.

The invariability of tastes with income appears to be equally heroic. With higher income, households can consider commodity combinations with a broader scope of choice. People would consider combinations of bread, rice, potatoes, beans, and vegetables for their diet with a certain income level. With a higher income level, people would expand their scale of choice to meat, poultry, seafood, etc. People would not have the same preference ranking of lamb chops and kofta kebabs if their income were not high enough to buy such items.

The problem was to show that these concepts could be aggregated, which means what is applied to one person can also be generalized to many people.

1. For two or more people, the income and substitutional effect could not be separated, making their total effect largely unpredictable. Their market demand curve could move upward or downward and have almost any shape at all. Economists are aware of this problem; it was discovered by William Gorman in 1953 and known as *Sonnenschein-Mantel-Debreu [SMD] conditions*.
2. Having proven that the 'Law of Demand' did not apply at the market level in general, the neoclassical economists assumed that the market with many people and goods would act as the individual demand curve if the entire market participants had the same attributes of the individual. More specifically, they argued that all Engel curves would represent neutral goods, and all those curves would be parallel to each other. A neutral commodity reflects

homothetic preferences. In other words, consumption as a percentage of income stays the same with income changes. The problem is that neutral goods do not exist. Just consider a graduate student who earns \$1000 per month and spends 1 percent of his income on shawarma sandwiches per month. After obtaining his Ph.D., he works as an assistant professor, earning \$100 thousand per month. Homothetic preferences would have us believe that he continues to spend 1 percent of his income on shawarma, or \$1000 per month, which would be incredulous. The fact is that the assumption of a neutral good would be valid only in a market with only one commodity. For all consumers to have parallel Engel curves, they have to have identical tastes. We have seen that this not justifiable. The only realistic situation in which this could apply would be if there were only one consumer.

3. Paul Samuelson (1956) argued that families do most shopping, and if, within the family, optimal transfers of income were undertaken. A family indifference curve can be constructed with all the properties of an individual indifference curve. Suppose the entire nation behaves like one big family and allocates wealth according to its needs. In that case, the society will also have *well-behaved* indifference curves that obey the 'Law of Demand.' According to Samuelson, the market demand curve only exists in a centrally planned economy.
4. Individual preferences cannot be viewed in isolation. Having ice cream would not give the same enjoyment when eaten alone as when eaten with one's family. The concepts of utility and preferences are extremely subjective and defy partial examination under highly restricted assumptions.
5. Therefore, we can conclude that the individual demand curve appears as a credible concept, despite the underlying hedonistic theorizing. However, the market demand curve stands shaky as a concept because we cannot always trust that it would be downward sloping.

MARKET SUPPLY: FACT OR MYTH?

The supply curve is the relationship between the price of a good or service and the quantity supplied for a given period. According to neo-classical economists, the price is set above marginal cost in a monopolistic market. If monopolies were the rule, then there could be no sup-

ply curve, and standard neoclassical microeconomic analysis would be impossible. In a perfectly competitive market, price is set equal to marginal cost.

Neoclassical economics set the profit-maximizing behavior of competitive firms where marginal cost equals price. The result is based on a simple mathematical mistake. It confuses a very small quantity, described by mathematicians as *infinitesimal*, with zero (Keen, 2011: 92). once this error is corrected, a competitive market will also set a price above marginal cost. Since the price would be set depending on the demand curve, every quantity supplied would depend on the demand curve that sets its associated price. Therefore, we have a neoclassical dilemma in which the supply and demand curves are interdependent.

Another side of the Neoclassical mathematical *faux pas* is that when each competitive firm's output is treated as zero, all these zeros are added. We get a zero output for the entire market. George Stigler (Stigler 1957: 8, n. 31; Keen, 2011: 93), using a basic mathematical rule, viz, the *Chain Rule*, showed that the slope of the demand curve facing the competitive firm is precisely equal to the slope of the market demand curve. Moreover, when a firm changes its output, other firms do not react instantly. Their reaction may be delayed until a new market price is registered and they happen to respond to it. Therefore, the change in industrial output to the change in output by a single firm until such adjustment occurs is 1.

ECONOMIC PERFECTION

Neoclassical proponents have perceived the market economy's neoclassical model as a perfect model. It displays a permanently stable equilibrium. Maximum social welfare is assured as every household maximizes its utility and every firm maximizes its profit. No economic policy, regulation, or interference of any kind is required. Such actions would deprive the system of its perfections. The neoclassical state-of-denial extends over all the crises experienced by market capitalism, including the Great Depression, the Great Recession, the crises in-between, and those yet to come.

NON-NEOCLASSICAL MODELS

The neoclassical model has persisted in attributing both equilibrium and stability to the market economy. Equilibrium is an ideal that is

hard to occur, and if it did, it would not last for long. The reason is the emergent behavior through which consumers react to each other and producers react to other producers. Furthermore, consumers would respond to producers and vice versa. The amount of emergent behavior through price searching should be enormous and would not allow for equilibrium and stability the way the neoclassics would like to think. Therefore, we must look for other models based on disequilibrium and instability. We can list here two types. One is Chaos or Lorenz weather model, and the other one is Goodwin and Phillips model.

I. CHAOS THEORY AND LORENZ WEATHER MODEL

Poincaré (1899) attempted to develop a formula describing planetary motion in a system with more than one planet (explained in Chapter IV) ended up with proof that there was no such formula. It ushered in what is now known as *chaos theory* or *complexity theory*. Neoclassical economists argued that the equilibrium of a real-world system must be stable. Otherwise, the system breaks down (Hicks, 1949, commenting on Harrod, 1939). Chaos theory proved that this belief, common among the neoclassics, is wrong. A real-world system's equilibrium can be unstable without the system itself breaking down.

Keen (2011) criticized the neoclassical economics elusive search for equilibrium as a dead end, as equilibrium would generally be unstable and rarely or never reached. However, clear patterns emerge like in Chaos or complexity Theory⁶⁵, summarized by Edward Lorenz in his Lorenz Weather Model (Keen 2011: 208; Lorenz 1987). Chaos theory concerns deterministic systems whose behavior is predictable only for a while and then 'appear' to become random.

In the Lorenz model, the pattern of any variable appeared erratic. However, the unpredictable or superficial chaos covers a visible structure like a 'two eyes' or 'butterfly.' The butterfly effect describes how a small change in one state of a deterministic nonlinear system can cause large differences in a later state. Imagine, e.g., a herd of wild camels in the Australian desert, once it starts running, causes torrential rain in Indonesian forests.

⁶⁵ Chaos is the science of surprises, of the nonlinear and the unpredictable. It teaches us to expect the unexpected.

The equilibria in the butterfly's two eyes are all unstable, for a small divergence from one equilibrium point can push the system away from that equilibrium. The dynamic evolution of the system can be described by differential equations.

We can learn four lessons from Lorenz Weather Model:

1. A system that is characterized by unstable equilibria would not necessarily break down. It can remain intact while showing complex cyclical behavior as often found in the real world.
2. When a model exhibits unstable equilibria, this implies that neither its initial nor its final position will be in equilibrium.
3. Real-world economic variables are likely to always be in disequilibrium.
4. Non-linear interactions between variables in a simple system like Lorenz (with just three variables and three constants) can cause incredibly complex dynamic behavior. Non-linear relationships in differential equation models can lead to complex but bounded behavior.

These patterns mimic the cyclical behavior of a capitalist economy, and hence, applying chaos theory to economics is an idea with potential.

II. GOODWIN'S DYNAMIC ECONOMIC MODEL

Goodwin's model of cyclical growth (1967, 1986, 1990)⁶⁶ is one of the first models that tried to combine cyclical behavior and economic growth. It was based on Marx's analysis of the relationship between wages, investment, and capital.

Goodwin argued that there would be cycles in employment rate and workers' share of national income in a simplified economy (that consists of just capitalists and workers). Mathematically, the model reduces to two equations:

The rate of change of workers' share of output = workers' wage demands (-) the rate of productivity growth;

⁶⁶ Goodwin Model combines aspects of the Harrod-Domar growth model with the Phillips curve to generate endogenous cycles in economic activity (output, unemployment, wages) unlike most modern macroeconomic models in which movements in economic aggregates are driven by exogenously assumed shocks.

The rate of change of employment = the rate of growth of output (-) population growth and technological change.

Rather than converging to equilibrium values, the workers' share of output and rate of employment would cycle indefinitely. When workers' share of output (u) and employment rate (v) are plotted against each other, it results in a closed-loop. The model orbits around its equilibrium indefinitely, which lies in the center of the loop, without converging.

III. PHILLIPS' DYNAMIC ECONOMIC MODEL

Phillips proposed building a dynamic economic model via comparative statics using the functional flow block diagram devised by engineers in the 1920's to represent dynamic processes visually. He produced a diagrammatic representation of his dynamic economy, using symbols indicating operations like time lags, differentiation, integration with time, addition and subtraction, etc. The model recast the standard comparative-static, multiplier-accelerator models into a dynamic form. Phillips included in his model the impact of expectations upon prices.

Phillips postulated a nonlinear relationship between production and the rate of change of factor prices. He sketched this relationship as a hypothetical curve that reflects a greater rigidity of factor prices in the downward (at times of unemployment) than in the upward direction (at the times of a boom). Phillips' model does not refer to a stable trade-off between inflation and unemployment as his curve was subsequently misinterpreted. However, it limits the volatility of the cycles that occur compared to what a linear relationship would yield. Because of wages' downward stickiness, the relationship between unemployment and the rate of wage change is more likely to be non-linear.

A disequilibrium explanation of the negative relationship between inflation and the rate of unemployment has been provided by Sansarci et al. (2014). They construct a system dynamics model of the original Phillips Curve. In their model, the wage level rises when the labor bargaining power exceeds that of employers and vice versa. The labor bargaining power varies directly with labor demand, and the employers' bargaining power varies directly with the unemployment rate. During the boom, the demand for labor and the wage rate increase. During the

downturn, the demand for labor and the wage level decrease. In other words, the wage rate depends on the unemployment rate and the direction of economic activities.

Disequilibrium in the labor market causes wage inflation. Other factors potentially causing wage inflation, like expectations, are dismissed, together with the alleged trade-off between inflation and unemployment.

Sansarcı et al. (2014) have provided a theoretical argument for the empirical Phillips Curve. They also credited Lipsey's (2000) misinterpretation arguments and Leeson's (1997) regarding the alleged trade-off between unemployment and inflation. It is a step towards using dynamics methodology to build disequilibrium economic models.

Phillips's model is inherently cyclical. The rate of inflation (operating through the cost of living adjustments in wage rates) would also affect the rate of change of wages – though Phillips tended to discount this except in times of war. To achieve the preconditions set by Phillips to keep the aggregate demand *at a value that would maintain stable wage rates* (level of product prices) would have required adding a whole host of control mechanisms. The simplistic, static *trade-off* interpretation of Phillips's curve rapidly became an embodiment of Keynesian economics. The neoclassics succeeded in using this misinterpretation during the 1960s and 1970s to discredit Keynesian economics that was dominant at the time.

CHAPTER VIII: LESSONS TO BE LEARNT FROM THE GREAT RECESSION

THE NEOCLASSICS AND THE GREAT MODERATION

The neoclassics have cleverly discredited Keynesianism, which they had misrepresented by two previously attributed models to Keynes. The first was the IS-LM model, originally a figment of Hicks' imagination to represent Keynes' ideas. In reality, it is a neoclassical structure, later alleged to represent Keynesianism, then conveniently set aside for alleged lacking micro-foundations (Hicks, 1937). He later disclosed his model's true lineage, but his fellow-neoclassical economists ignored his confession (Hicks, 1980). The second is their misinterpretation of the Phillips curve as a tradeoff between unemployment and inflation. The neoclassics succeeded in making such an artificial interpretation a *Keynesian liability*. They expediently used it to pushing Keynesians aside, whom they replaced as managers and policymakers of the market economy. The neoclassical long and comfortable reign, starting with the mid-eighties and until the great recession of 2008, was hailed by Bernanke, the Fed's then Chairman as the Great Moderation. Bernanke (2004) declared that the Great Moderation delivered unprecedented success:

1. A decline in the variability of quarterly growth in real output by half since the mid-1980s,
2. A decline in the variability of quarterly inflation by about two thirds

Bernanke suggested three possible causes: (i) structural change, (ii) Improved macroeconomic policies, and (iii) good luck. He bestowed improved monetary policy with the highest honor.

Robert Lucas, a prominent architect of neoclassical macroeconomics, In his AEA Presidential Address (2003), made a most extraordinary claim that the neoclassical macroeconomic theory had made another depression impossible. In his address, he claimed that macroeconomics was born as a distinct field in the 1940s, simultaneously with the intellectual response to the Great Depression. He alleged that macroeconomics was the body of neoclassical knowledge and expertise preventing depressions' recurrence. He then declared that macroeconomics, as he understood, has succeeded: Its central problem of depression pre-

vention has been solved, for all practical purposes, and for many decades.

We can, therefore, say that neoclassical economics appeared triumphant in 2001. A long-running boom continued in the USA after the Nasdaq crash in April 2000. Inflation and unemployment were trending down. After deposing Keynesians, the neoclassical economists felt they have unprecedented economic success. They savored their alleged success while forgetting that they had rejected many of the concepts introduced by the *Keynesian Revolution* in the 1930s.

Neoclassical economists advocated the avoidance of government intervention in the economy. They advocated leaving financial markets well alone to decide outcomes unimpeded by regulations. They abandoned counter-cyclical budget policies that were replaced by yearly surpluses to reduce gov't size. Finally, they used the neoclassic-controlled central bank to manage the interest rates to maintain a low inflation rate⁶⁷.

The neoclassical economic theory ignored the role of money and debt. It is rather difficult to understand in the complex, monetary, credit-based contemporary market economy. Yet, neoclassical economics succeeded in dominating economics for the last half-a-century. When the Great Recession struck, some economists have come to believe (Keen, 2011: 27) that the neoclassical theory posed an existential threat to the market economy.

WHO SAW THE GREAT RECESSION COMING AND HOW?

The prediction of the Great recession should not have been considered an impossibility. Economics had theories that have been ignored by the neoclassics that foretold the coming of the crisis. We can mention Fisher's debt deflation hypothesis and Minsky's financial instability hypothesis in this context.

Bezemer (2009: 7) listed twelve names who were able to anticipate the Great Recession: Dean Baker, Wynne Godley, Fred Harrison, Mi-

⁶⁷ Ironically, this does not include policymakers who ignore their neoclassical creed at times of crises and turn into Keynesian interventionists. As advisors to government, they often draw policies that are not totally faithful to their doctrine. It raises an important question on whether the neoclassics have a theory of all seasons or a theory for each season.

chael Hudson, Eric Janszen, Steve Keen, Jakob Brøchner Madsen, and Jens Kjaer Sørensen, Kurt Richebächer, Nouriel Roubini, Peter Schiff, and Robert Shiller.

He also identified four common aspects of the work of the distinguished twelve. First, they gave special attention to financial assets as distinct from real-sector assets. Second, they focused on the credit flows that finance both types of assets. Third, they closely followed the debt growth accompanying growth in financial wealth. Fourth, give due attention to the accounting relationship between the financial and real economy

The Great Recession crisis was anticipated by both the post-Keynesian and Austrian schools. The post-Keynesian school leveraged their familiarity with Hyman Minsky's *Financial Instability Hypothesis* to anticipate the crisis. The Austrian school leveraged their familiarity with Hayek's argument about the impact of interest rates too low by government policy as a predictor to the crisis. What contrasted Steve Keen from the other schools of thought was that he had developed a mathematical model that incorporated great non-neoclassical thinkers' views of how this crisis might come about and his clear public warnings of the crisis.

NON-ORTHODOX THEORIES OF ECONOMIC CRISES

I. SCHUMPETER & THE EMPIRICAL DYNAMICS OF DEBT

Schumpeter provided insight into debt's role as a key driver of economic activities. Therefore, aggregate demand in a credit-driven economy is equal to income (GDP) and debt change. According to Schumpeter, the expansion in credit must come from the banking sector creating new money and credit *out of nothing*. Subsequently, excessive debt growth will cause a boom, and the inevitable slowdown in debt growth will cause a slump. As will be explained later, Minsky extended Schumpeter by considering Ponzi finance.

II. FISHER'S DEBT DEFLATION HYPOTHESIS

Fisher's 'Debt Deflation Theory of Great Depression' was rediscovered by the non-orthodox economist Hyman Minsky; Fisher's pre-Great Depression theory was formalized into the efficient markets hypothesis. The latter was a conventional theory that argues for financial

markets' stability. The former was an unconventional theory that argues that speculative bubbles can cause economic depressions.

After the Great Depression, Irving Fisher produced his debt-deflation theory by departing from the assumptions he used in the Theory of Interest. He acknowledged that the market is never in equilibrium. Moreover, debts could fail to be repaid, individually and totally. He argued that there were dynamic forces behind the Great Depression. If the real economy momentarily reached equilibrium, it would be soon interrupted by new disturbances. Any variable is almost always above or below equilibrium. He departed from the neoclassical tradition of stable equilibrium by admitting that equilibrium was likely precarious. Once the market departed from equilibrium, stability becomes inevitable beyond certain limits. A slight movement away from equilibrium could set in train forces driving the economy even farther away than returning it to balance.

The crucial ingredient needed to turn this limited instability into a catastrophic collapse was an excessive level of debt. The breaking of many debtors constitutes a *crash*, after which there is no coming back to the original equilibrium. He postulated that the 'two dominant factors' behind depressions are Over-indebtedness to start with and deflation following soon after. Over-investment and over-speculation are important but have far less serious results when not conducted with borrowed money. Over-indebtedness, meanwhile, may lead to over-investment or over-speculation.

Over-confidence is seldom harmful except when it pushes its victims into debt. Overconfidence leads investors to overestimate the prospective gain from the investment or underestimate the risks. They commit themselves to an unsustainable level of debt. Overconfidence is inevitable in the real world because all real-world variables are rebound to be either above or below their ideal equilibrium values.

A chain reaction tips the economy into depression. It starts with distress selling at reduced prices, driven by the need to cover debt repayments. Distress selling triggers falling prices, which increases the real burden of debt, even as nominal debt is reduced. Debt repayment reduces the money supply. Such effects, taken together, cause further bankruptcies, lowering profits, investment, output, and employment. Pessimism rises in place of overconfidence, causing money holders to

hoard it, reducing business activity. The falling price level pushes the real interest rate up, even though nominal rates have fallen. It drastically reduces investment.

The essence of Fisher's theory is that falling asset prices in the financial market increases debt burden and forces debt repayment difficulties.

Fisher's debt deflation hypothesis is an alternative explanation of the Great Depression to both Keynes' rejection of Say's Law and Hicks's *liquidity trap*. While the chain reaction argument is plausible, Fisher provided no formal proof. For this reason, his thesis was poorly received by his contemporary economists, who were swamped by the adoption of Hicks's IS-LM analysis following the publication of Keynes' General Theory.

After the Great Depression, economists continued to cite Fisher's Pre-Crash work on finance, while his debt-deflation theory was largely ignored. They also missed the antipathy he saw between the formal concept of equilibrium and asset markets' actual performance. Equilibrium remained the defining feature of the economic analysis of finance. It process reached its zenith with the development of what is known as the efficient *market hypothesis*.

III. MINSKY'S FINANCIAL INSTABILITY HYPOTHESIS

Since recurrent crises characterized the 19th-century economy, Minsky argued that there must be an economic model that can generate depression as one of the economy's possible states. However, the present neoclassical modeling cannot generate instability as one of the economy's possible states, hence the rejection of neoclassical economics by Minsky.

In place of market free neoclassical model, Minsky's vision of Capitalism was strictly monetary, inherently cyclical, with an unknown frequency of occurrence, institution-rich and holistic, and considered the interactions of its four economic agents: industrial capitalists, bankers, workers, and the government.

According to Minsky, the rise in debt to equity ratio decreased liquidity. The ultimate growth of credit marked the beginning of 'the euphoric economy,' where both lenders and borrowers believed that the future was assured. Therefore most investments would succeed, re-

sulting in an upward revaluation of asset prices. Highly liquid, low-yielding financial instruments are devalued, leading to a rise in the interest rates offered by them as their issuers fight to retain market share. It decreases in liquidity and an increase in interest rates led to Ponzi financiers' rise. Capitalists profit by trading assets on a rising market and incur significant debt in the process. They are motivated by capital appreciation since the servicing costs of their debts exceed the cash flows of the businesses they own, and the capital appreciation they anticipate far exceeds the interest bill.

Over time, the Ponzi financiers find themselves with assets that are no longer tradable at a profit. Their debt cannot be serviced using the cash flows earned by the businesses they control, thereby resulting in their default. It leads to a sharp decrease in liquidity in the banking system and hence increases in interest rate. The asset market becomes flooded; the euphoria turns into a panic; the boom becomes a slump.

The cash flows generated depend on the level of investment and inflation rate. The investment level has already collapsed after the boom period and can no longer be reliable. Asset prices and cash flows can only be realigned through either asset price deflation or current price inflation. Minsky's iconoclastic perception of inflation, his explanation for the stagflation of the 1970s and early 1980s was based on such dilemma.

Minsky argued that high inflation would result in increased cash flows during a crisis and increased ability to repay debts, while low inflation meant the opposite. Therefore, he concluded that the asset price deflation route is not self-correcting but rather self-reinforcing. In a nutshell, it is Minsky's explanation of depression in an economy without the government sector. However, with government, the picture brightens in two ways, because of fiscal deficits, and Reserve Bank interventions can come to the rescue in more than one way. These two forces ameliorate collapse in both cash flows and credit.

IV. KEEN, MINSKY AND GOODWIN

Keen (1995) further developed the Minsky model using the cyclical growth model developed by the non-neoclassical economist Richard Goodwin (1986, 1990), which considered the level of investment and income distribution in a simple two-class model of capitalism. The

wage and rate of unemployment determine the investment level. In turn, investment also impacts both wage and unemployment giving rise to a classic dynamic model of circular causation, which contrasts with the neoclassical obsession with equilibrium. The Goodwin model was criticized by Blatt (1983) as its equilibrium was not unstable.

Keen included Blatt's criticisms and added Keynes' model of how capitalists form three conventions to cope with uncertainty. The most important of the three is the tendency to project forward current conditions and Minsky's emphasis on debt in financing investment plans during a boom period by incorporating Schumpeter and Fisher's insights on the essential role of debt in a capitalist economy.

Keen introduced an additional variable: the rate of change of debt, which rose when investment exceeded profits and *vice versa* to the Goodwin model. The behavior of the model dramatically changed and exhibited three discerning characteristics:

- (i) even though capitalists were the only borrowers in this simple model, the debt repayment burden fell on workers,
- (ii) if the model did head toward a debt-induced breakdown, the debt-to-output ratio ratcheted up over time. Normally, the breakdown was preceded by a period of reduced volatility.
- (iii) The model generated a 'Great Moderation.' However, as the debt level overwhelmed capitalists' capacity to service that debt, the economy went into a death spiral. Eventually, a 'Great Moderation' gave way to a 'Great Recession.'

V. REPLACING THE EFFICIENT MARKETS HYPOTHESIS

To replace the efficient market hypothesis, Keen provides four financial theories of stock market movements. Now, let us look at what Keen said about them.

The Efficient Markets Hypothesis says that new information's random arrival will cause stock market volatility or stock market movements. Therefore, if there were no further information coming into the stock market, the market will be stable and reach equilibrium. However, non-neoclassical theories argue that the financial sector can't be stable unless controlled or highly regulated and monitored by institutions. Capitalism will always face potential extremely harmful break-

down caused by financial markets. Keen suggests four alternative theories to replace the efficient market hypothesis.

VI. BEHAVIORAL FINANCE.

In the Efficient Markets Hypothesis (EMH), neoclassical economists define investors as 'rational.' In contrast, Behavioral Finance found that when people participated in gambles, their decisions always contradicted the definition of rational behavior under conditions of risk. People gambling in the stock market is facing great uncertainty. Their economic findings contradict the 'expected utility theory.' Under this theory, a rational gambler is expected to choose an option that will maximize his expected return. Instead of arguing that investors are irrational, behavioral economists say that financial-market gamblers' behavior deviates from pure rationality in systematic ways. However, such a conclusion is based on the concept of expected return and observation of people's behavior in a single experiment, which will all become invalid if the experiment is repeated several times in the long run.

Both neoclassical and behavioral economists fail to benefit from John Von Neumann and Oskar Morgenstern (1953). Neumann and Morgenstern argued that in situations where if it was possible to define indifference curves (which is rather questionable), it is possible to measure the utility by using gambles. Von Neumann and Morgenstern emphasized that meaningful utility calculation must be applied *only to repeatable experiments in long runs*.

Both neoclassical and behavioral economists ignored such emphasis. They did not follow the von Neumann and Morgenstern axioms at situations of one-off games where the objective risk would apply in a repeated experiment. Neoclassical and behavioral economists replaced von Neumann and Morgenstern's axioms by the subjective uncertainty of a single outcome. An investor will be only rational, namely get the expected value, if he repeated the game numerous times. It must be noted that the expected value is irrelevant to the outcome of any particular game.

VII. FRACTAL MARKET HYPOTHESIS

The fractal market hypothesis attempts to interpret stock market prices without looking into stock market traders' behavior. It claims

that share prices follow a rather intricate pattern called a fractal. In a stock market, each price movement can be a complex function of its precedent. Any measurement errors in specifying a fractal model's initial conditions will grow exponentially with time in a fractal system. It becomes almost impossible to overcome this problem by using more computing power. Thus, it is challenging to predict how the stock market will move and how much under the fractal market hypothesis.

Furthermore, the Fractal Market Hypothesis concludes that the stock market will be stable when it allows investors with different time horizons to trade smoothly. It explains market stability by the realistic assumption that traders differ in their time horizons rather than say investors are rational. According to the hypothesis, the market will become unstable if all investors suddenly switch to the same time horizon. At any rate, the Fractal Markets Hypothesis cannot explain what generates the data

VIII. INEFFICIENT MARKETS HYPOTHESIS

Bob Haugen (1999) developed the Inefficient Markets Hypothesis, which is diametrically opposite the EMH. He argued that under uncertainty, speculators would not trade based on new information but think other market participants will react to the news. Unlike the EMH, this 'news' can include the most recent stock prices themselves.

Haugen identified three causes of stock market volatility: event-driven, error-driven, and price-driven, while the EMH only proposed the first source of volatility, and its proponents do not believe that the other two can exist in the equilibrium of an efficient market.

Error-driven is due to the market overreacting to news, leading to over adjustment when the initial mistake has become evident. *Price-driven* means that the market reacts to its volatility, building price movements upon price movements. Its endogenous instability accounts for over three-quarters of all volatility. He argued that the stock market's endogenous instability is very harmful to a modern capitalist economy. As the stock market plays a role in directing investment funds, the price-driven factor will enable some companies to get massive funding. However, they would turn out to be worthless in the long term. It ultimately makes potentially worthy ventures short of finance.

IX. ECONOPHYSICS.

Econophysics provides many explanations of the financial market volatility. Its unifying theme is that the interactions between various market participants lead to fluctuations in financial markets. Such interactions cause a volatile and relatively unpredictable time series in financial data. Its explanation is contrary to the neoclassical perspective. Econophysicists believe that markets are very far from equilibrium and are dynamically complex. Market equilibrium does not and cannot occur.

X. WHAT OTHER THEORIES?

Other alternatives argue that the stock market is inherently unstable. Stock prices are not a random walk but a fractal pattern. In contemporary stock markets, the major news will always be the most recent movements in stock prices, rather than the real information from the economy, which neoclassical economists emphasized.

Moreover, non-neoclassical theories pointed out that contemporary stock markets have abysmal performance in allocating investment funds because they are dominated by speculators. Although reforming the financial sector has been tried, it has always failed due to the current financial system's innate desire to create debt. Inevitably a crisis would occur if the borrowing builds up debt levels without increasing the real sector's capacity to service those debts.

CHAPTER IX: FROM NEOCLASSICAL PERFECTION TO SEARCH BEHAVIOR

In this chapter, we start the foundations of our Islamic economic analysis. We switch from the neoclassical perfect-information and perfect-competition model to a prelude search model to exist León Walras centralized exchange model and get into a realistic model based on search behavior.

WALRAS AND CENTRALIZED EXCHANGE

Leon Walras illustrated how equilibrium in the goods markets can be reached and how the market-clearing prices are formed. His structure depended on three processes. The first process is arbitrage (benefiting from buying goods offered for lower prices by some and demanded at higher prices by some others). The second process is *tâtonnement* (groping), which refers to inching in toward equilibrium, as excess demands and supplies are typically announced at every price. In contrast, trading at non-equilibrium prices is prohibited. The third is a centralized exchange, which places all traders in one space, chaired by an auctioneer. The auctioneer cries out prices, collects the information about quantities of excess demand and excess supply of each good.

The auctioneer does not permit trade at non-clearing (or false) prices. When he finds that certain prices for some goods clear the market, i.e., excess demand or excess supply is equal to zero, he cries such prices as “equilibrium or market-clearing” prices, at which trade is allowed. Traders continuously adjust their quantities demanded and supplied through the process of arbitrage. The auctioneer approaches equilibrium prices through *tâtonnement*, i.e., raising the prices at which excess demand is buoyant and reducing the prices at which excess supply is positive.

Leon Walras introduced an ingenious structure that explained competitive equilibrium. He intended to demonstrate that the process of *tatonnement* would eventually lead to equilibrium. Once achieved for some commodities, more clearing prices would follow even if disequilibrium trading occurred. He desired to show that general equilibrium was stable. If the system swerved from equilibrium, it would return to it.

Furthermore, if *tatonnement* began with non-clearing prices, it would eventually settle to clearing prices. Debreu gave up on proving stability,

concentrating instead on proving the existence of general equilibrium. However, under fairly general conditions, it can be shown that general equilibrium is unstable. Blatt (1983) takes credit for establishing this mathematically.

Positive prices and negative stability Walras's assumption that the direct effects of the price change would outweigh the indirect effects – so that the process of *tatonnement* would converge to a set of equilibrium prices – was reasonable, given the state of mathematics at the time. However, mathematical theorems worked out in the twentieth century established that, in general, this assumption is wrong.

These theorems established that the conditions which ensure that an economy can experience stable growth simultaneously guarantee that Walras's *tatonnement* process is unstable (Blatt 1983). Therefore if the auctioneer's first attempt at prices is slightly different from the set of market-clearing prices. His subsequent attempt – derived by increasing prices for goods where demand exceeded supply and vice versa – will be farther away from the equilibrium set of prices. The process of *tatonnement* will never converge to the equilibrium set of prices. So if equilibrium is a prerequisite for trade, trade will never occur.

The Walrasian structure has exposed general equilibrium weaknesses, which can be reached either under heroic assumptions or an impossible institutional arrangement, *viz.*, centralized exchange. Walras leaves us with a strong impression that in the real world, traders cannot assemble in one space, no auctioneer exists, and even if he/she existed, such a person would not be able to control the singlehandedly exchange process. In other words, the idea of centralized exchange is too farfetched. It is acceptable, neither as an intellectual exercise nor as an approximation. Nonetheless, it is a useful compact illustration of a central concept of neoclassical economics that has become increasingly open to criticism and appears to be mostly fanciful.

The most striking side of the theory of value that Leon Walras's structure has exposed was that this theory is devoid of a medium of exchange. If such a medium were introduced, there would be no need for a centralized exchange. However, even with the existence of money, a market-clearing price for each traded commodity would still be in question.

The structure itself is, therefore, a mythical substitute for money. We have a numéraire, but it is no more than a unit of account. We can

choose any good, even at random, as a numéraire, and divide every price by the price of the chosen well. Now we have all prices expressed in units of the numéraire. With its auctioneer, arbitrage, and tâtonnement, the centralized exchange has been cleverly designed to substitute for a medium of exchange. The irony is that perfect competition without money is insufficient to reach an equilibrium. Centralized exchange helps. But even with money, the existence of equilibrium would remain doubtful, as will has been demonstrated in several places in this book. Besides, money cannot be brought in without a good reason. If the model is frictionless, money would have no *raison d'être*. Once a reason to use money enters the model, perfect competition exits at once.

SEARCH THEORY: EXIT NEOCLASSICAL ECONOMICS

Search models have shed more light on market events classical and neoclassical economics could not explain. Such models have shaken up our common belief inherited from our neoclassical teachers at a uniform price for each market.

I. IRRECONCILABLE market PHENOMENA

A. UNEMPLOYMENT

Some market phenomena are not reconcilable in classical and neoclassical economic theory. For example, unemployment indicates a non-clearing labor market that is supposed to clear under perfect competition. When coupled with vacancies, it becomes more paradoxical. Moreover, instead of a uniform price ruling out in each market, we observe price and wage dispersion. Prices do not usually respond to excess demands and excess supplies, sufficient to clear factors and goods markets as indicated by the received doctrine. Instead, we observe price stickiness, bid-ask spreads, and bilateral trade difficulties, all of which are unsurmountable without the use of money and related institutions.

In particular, we can easily identify unemployment accompanied by vacant positions to be filled but cannot explain them using the received neoclassical doctrine. Furthermore, we can find people paid different wages for the same work (wage dispersion) and different prices for commodities perceived to be the same (price dispersion). Prices and wages may not be responsive to certain changes but tend to be sticky. When the price of crude oil increases, prices at the gas pump do not rise instantly,

and when crude prices go down, prices at the pump remain unchanged, at least for a while.

B. PARTNERSHIP FORMATION

Partnership formation arises in cases, for example, of marriage and employment. The problems confronted by workers looking for employers, firms for workers, and bachelors looking for spouses are similar. They are all seeking long-term partners. Despite the predominance of speculations in the stock markets, we still find investors who maintain long-term shareholding in their favorite companies. Even in simple *Musharaka*, as we will see later, combining some resources with partners for the sake of profit or product sharing cannot be explained by the received doctrine. Partnership formation can also be found in the student-school/university relationships. It can even be extended to friendships (Burdett and Coles, 1999). Benefits earned from forming a partnership with different partners would not be equal. Such benefits can take the form of pecuniary and non-pecuniary gains. It creates a space for choice.

Each partner in a partnership would evaluate its potential benefits. Workers would assess the benefits of alternative employment opportunities. Even expectations regarding accepting an offer would influence decisions related to the partnership. When partners' size and capabilities are asymmetrical, trust could become a factor (Blomqvist, 2002).

Should we try to apply neoclassical economics to partnership formation, typically, we would find that the traditional setup is not useful. Potential participants in any type of partnership hardly know everything about each other, as would the neoclassical theory assume. None of such deals of matching can be made without cost. Finding employment, a spouse, or a business partner takes effort and time. People would develop ways to facilitate finding potential partners, e.g., using employment agencies, placing and reading advertisements, singles using their network of friends and relatives to find spouses, etc.

In other words, we cannot rely on classical or neoclassical theory to explain several common yet important phenomena. It is where search theories are required to provide such an explanation. Yet, in their endeavor, they tend to strip away a critical guiding force from classical

models, namely, the price. In particular, they tend to treat price formation as an afterthought that has to be sorted out once agents meet (usually through bargaining), but that cannot be used to guide individuals' search decisions. Since the price does not guide the meeting process, it cannot be subjected to neoclassical efficiency or optimality criteria.

II. NEOCLASSICAL ECONOMICS AND MONEY

In a neoclassical world of perfect information, perfect competition, and zero transaction costs, money plays no role. Matching deals would be done at no cost. We have to introduce some imperfection, like search cost and search behavior to justify the existence of money.

SEARCH BEHAVIOR

Search Theory investigates economic behavior under trading frictions. The most obvious example of such frictions is the difficulty of matching potential traders.

Trading frictions manifest themselves in the form of transaction costs that cause markets to be incapable of exhausting all potential trade opportunities. With search theory, such phenomena as unemployment, capacity underutilization, and unsold inventories can be explained.

It implies that introducing search behavior requires a new perception of equilibrium. We can no longer accept the existence of one price, nor can we dismiss the possibilities of price dispersion among similar goods.

I. RANDOM OR UNDIRECTED SEARCH

Diamond-Mortensen-Pissarides, DMP, models of random search provide a unifying explanation for many of the facts elaborated above. Yet, in their endeavor, they tend to strip away a critical guiding force from classical models, namely, the price. In particular, they tend to treat price formation as an afterthought that has to be sorted out once agents meet (usually through bargaining), but that cannot be used to guide individuals' search decisions. Since the price does not guide the meeting process, efficiency is not obtained except under exceptional conditions.

To introduce search behavior, random search models (Diamond, 1987; Shi, 2006) use two elements for this purpose. First, they introduce a *matching function* that generated the frequency of matches between agents. In this way, traders take the matching frequency between them as

given. Second, they add a *mechanism to determine prices* in individual trades. Such models can be classified into two groups:

1.- Sequential search models in which traders post prices on one side of the market (suppliers or manufacturers)

Price quotes reach traders on the other side at an exogenous rate and sequentially decide whether to accept the quotes. We call this type: *directed or competitive search models*.

2.- Random-matching models with matching frequency a function of the ratio of the numbers of agents on the two sides of the market

Such models determine prices by Nash bargaining. Notice here that the quantity of goods offered at each price does not play a role in determining the matching frequency.

II. DIRECTED OR COMPETITIVE SEARCH

In directed or competitive search, agents on the buyers' side (buyers of commodities, sellers of factors of production) target their search towards certain types of traders in the market, based on the information they had acquired. The source of information is the terms of trade posted in advance by agents on the other side of the market (commodity suppliers and buyers of factors of production). Posted terms of trade, guide search, and influence pairing between trading agents. Moreover, agents who post terms of trade commit themselves to prices, delivery conditions, and other terms of trade. It can prove to be a lower-cost alternative to bargaining.

Models with posted information on one side of the market that produces directed search on the other side of the market require no bargaining solution. Some of the models, but not all, avoid the need for a matching function. Advocates of the directed search theory claim that it is tractable often delivers cleaner results than alternatives, and bridges gaps between traditional search, general equilibrium, and game theory (Wright et al., 2017).

Advocates of the theory further claim it is more realistic (Howitt, 2005), noting that exchanges are concluded through specialist traders, who mitigate search costs by providing facilities that are *easy to locate*. Shoppers for shoes go to shoe stores; for food, go to a grocer; job seekers go to firms known to offer employment. Households generally do not plan their economic activities based on random encounters. While some neoclassical economists pay little attention to realism, e.g., Friedman (Hoover, 2004), Islamic economics methodology gives it due importance.

III. SEARCH AND STRATEGIC BEHAVIOR

Strategic behavior arises when agents in the market become either cooperative or non-cooperative. Cooperation in markets appears in the voluntary exchange of information on commodities and prices. Examples of cooperation vary from informal contacts between consumers to placing reviews of commodities on websites by buyers, forming consumers' clubs and organizations to test products, and circulating information about quality and prices. Similar behavior can be observed among producers. One form is joining trade unions and chambers of commerce, where information can be voluntarily exchanged. Another is the formation of producers' clubs. A more extreme form would be the formation of cartels.

Similarly, strategic behavior can take the form of hostile games. Examples among consumers include standing in lines to pay for merchandise or to get a place in a restaurant and using friendship and contacts to receive rationed commodities. Examples among sellers/producers include lining-up of taxicabs in front of hotels and airports to pick up customers and announcements of sales and promotional schemes to attract customers from competitors.

Using strategic market games, Koutsougeras found that with the number of agents becoming *sufficiently large*, the number of agents who are not price takers, i.e., who stick to search behavior, becomes *arbitrarily small* (Koutsougeras, 2009)⁶⁸. To do so, he assumed preferences are convex, differentiable, strictly monotone, and indifference surfaces through the endowment do not intersect the axis. Such assumptions are open to criticism, elaborated when hedonistic economics are treated. Moreover, the mathematical concepts of being *sufficiently large* and *arbitrarily small* raise some issues when projected to reality.

Search behavior is usually associated with elements that inhibit the possibility of the number of agents being sufficiently large. Market segmentation implies that such a theory cannot hold in reality.

Markets with finite numbers of agents become the right place for strategic behavior. When the number of agents becomes large, strategic behavior may no longer be justified. However, such a possibility becomes relatively remote. Directed or competitive searches can shrink or have a

⁶⁸ Previously established related but not similar results can be found in Postlewaite and Schmeidler (1978), Bewley (1974) and Hildenbrand (1974)

limiting effect on a large economy. It should be perceived in parallel to the neoclassical claim that a large number of traders can turn agents into price takers. The limiting effects of directed or competitive search imply that once frictions are introduced in a model, they take center stage, even with a large number of agents.

In summary, the assumption of markets with a sufficiently large number of agents is heroic. Even if we could find one, their preference functions cannot be as well-behaving as would usually be desired in neoclassical economics.

The directed search theory concludes that agents who post more favorable terms will enjoy higher probabilities of obtaining customers. Still, such possibilities would never reach unity due to each supplier's limited capacity. No supplier in his right mind would attract all customers in the market. The tradeoff between prices and probability cannot be extended to the extreme.

Strategic search can also be used to develop micro-foundations for monetary theory, as it presents an acceptable *raison d'être* of money⁶⁹. As economists finally realized, models containing money must have an imperfection of some sort. Kiyotaki and Wright (1989, 1991, 1993) have analyzed a monetary model that uses random matching to represent the trading process. The model, which is called the search model of money, offers a novel alternative to the conventional Walrasian model. By decentralizing the trading process, the model abandons the Walrasian fiction and captures such realistic features of markets and their time-consuming trading processes. In particular, exchanges must be *quid pro quo* in the sense that a coincidence of wants is required for each bilateral trade. The model naturally generates a transaction demand for money that has been articu-

⁶⁹ Insistence on microfoundations for macroeconomic theories can be traced back to strong reductionism which has been charged with reducing macroeconomics to applied microeconomics on the one hand and ignoring the interaction between the components of the system. An example would be the failure of neoclassical economics to support their strong reductionist idea that the market demand curve is a horizontal sum of individual demand curves. Such claim ignores the interactions between individual consumers and the what has been termed the emergent phenomenon. Nonetheless, we welcome the idea that we introduce search behavior as a way to open the door for bringing in money as a medium of exchange that traders find useful in reducing their transactions costs. At the same time, we stay aware that traders in a search model interact. Their emergent behavior leads not only to the use of money, but produces some dynamics that diverge from the neoclassical equilibrium analysis.

lated. When agents must spend time looking for a coincidence of wants, money speeds up transactions by alleviating the difficulty of a coincidence of wants.

The claims emanating from the search model of money raise some objections. First, it is based on a random search, which is rather unrealistic. Of course, it should not be difficult to redo the model under a directed search. Second, the introduction of search behavior into the monetary model would undoubtedly be a step toward justifying the use of money. Still, it remains to be seen whether the search behavior has further repercussions. Third, we generally object to the call for micro-foundations, as it implies transforming macroeconomics into applied microeconomics⁷⁰.

IV. SEARCH MECHANISM AND EFFICIENCY

The directed or competitive search theory extends pricing to both quantities and the time required to trade to consider markets' operation and efficiency. In contrast with traditional search theory, it focuses on efficient solutions.

Search theory introduces the pricing of both quantities of goods traded and the time required to trade to evaluate operations and market efficiency.

Posted prices provide buyers with information to direct their search towards certain counterparties. The way search is so directed, with the consideration of pricing trading time and commodities, leads to efficiency. By posting prices of goods by suppliers and pricing the time spent on search, the directed search model becomes capable of internalizing search externalities by reaching higher levels of efficiency. Agents can use prices to directly affect the matching frequency. Directed search can enable the market to produce an efficient allocation under the matching technology constraint.

However, the above presumption of optimality possibilities may be exaggerated. Imperfect information necessarily means that no one knows the prices at which searching stops. Traders may oversearch. Since only a

⁷⁰ The main gap between microeconomics and macroeconomics is the problem of aggregation. Aggregation of the behavioral functions of the micro units into behavioral functions of macrounits can be done in perfect models, where there is no emergent phenomena. In models of imperfect information, in which interaction between microunits gives rise to emergent phenomena, aggregation cannot be handled with the available tools.

small minority can be information specialists, not covering all commodities, the information market would be imperfect. Not all information can be sold. People's ingenuity would be directed towards saving on information costs. We will treat such information saving methods in later chapters. However, not every piece of extra information is marketable. Optimality would only be possible when all such externalities are internalized. It would require radical institutional changes in the market economy to promote and increase internalization. The necessary institutional changes would become significant institutional differences between an Islamic economic system and a conventional market economy. More would be offered at later chapters.

V. MAJOR IMPLICATIONS OF DIRECTED SEARCH

Now we can investigate the role of directed search activities for trading partners. When employers offer higher wages, more applicants come forward. Filling out vacancies would consume more time. While search time is reduced, it never goes down to zero. Offering higher wages attract more potential partners and reduce the time of identifying the desired ones, which amounts to another way of paying for the price of waiting time (Wright et al., 2017).

Competitive search has two features. First, sellers post prices before encountering partners and striking deals. Second, prices guide search activities and help determine the eventual partners. The combination of posting and directed search play together like an orchestra. Posted prices provide agents with incentives to find partners. Search efforts become internalized by searching agents, leading to efficiency. There is no need for additional assumptions in directed search models to reap the benefits of quicker and better matches.

CHAPTER X: CONSUMERS BEHAVIOR

Economists have perceived prices as resulting from two forces, demand and supply. The two forces work in parallel under the rules of equilibrium. Like two equations in two variables (quantity and price) under the proper conditions, they should be solvable in one two-dimensional point. Such perception, which brings about admiration for simplicity and precision, was even promulgated by ancient economists. When the neoclassics added marginalism and utilitarianism, simplicity evaporated, and precision became open to question.

We have argued that Islamic economics is an inseparable part of economics. It shares its methodology, after sufficient adjustments to ensure inclusiveness, in addition to an adequate degree of realism. Methodology adjustments remove the inconsistency between a perfect world's microeconomics, as constructed by the neoclassics and the real world. The additional dose of realism is provided to remove the serious errors caused by analyzing in a perfect but imaginary world. Furthermore, the macroeconomics imperfections necessary to justify money and debt.

We, therefore, present in this chapter an exercise into price searching. Such exercise may appear first hand out of place in Islamic economics. The context of previous chapters suggests that Islamic economics has to avoid the pitfalls of neoclassical economics. It aims to reform both economics as a discipline and the market economy as a system. Such reform in both directions requires an analysis based on imperfect information. It also requires a careful review of market capitalism's institutions to streamline the system.

The dilemma is that Islamic economics has several principles related to money and financial markets, which cannot be possibly discussed in the framework of a neoclassical moneyless neoclassical environment. The alternative is to wait for microeconomics to be recast with the realism required in Islamic monetary and financial economics. Such waiting could be indefinite, as we cannot control the research agenda of our contemporary neoclassics. The current generation of economists is still firmly attached to the orthodoxy, supported by a whole network of academic education and research all over the USA and Europe. We must, therefore, do it ourselves.

It chapter and the following two chapters attempt to articulate an economist's view of an imperfect world, focusing on household and firm behavior. The third world remains second in economics because our teachers and curricula are imported from past colonial masters. Our education policies are not designed in our countries but are set somewhere else.

In this chapter, we focus on households and demand. In the following chapter, we start with Sraffa's attempt to shake up the orthodoxy regarding the theory of the firm. His contribution has covered a reasonable distance but did not go far enough. In the following chapter, we attempt to benefit from Sraffa's contribution to complete his mission with a new theory of supply and the theory of floating disequilibrium.

CONSUMER DECISION-MAKING MODELS, CDM

The consumer decision-making models are part of the consumer behavior school's literature in the marketing field. Its concern with human behavior about consumption connects it with demand theory. It started with the neoclassical idea of the consumer as a utility maximizer. It later extended to Freudian psychology in studying the manipulation of consumers using subliminal messages, then to Pavlovian psychology, investigating conditioning consumers by repetitive advertising. Then it extended further to psychophysics,

studying sensitizing consumer sensory thresholds by just noticeable differences. Cognitive psychology came in to provide consumer information processing and risky decision making. Social psychology pitched in to raise how to sway consumers by opinion leadership and social influence. Finally, sociology is used to view consumers within a social class and subcultures then anthropology came to study consumers as subject to folklore, ritual, myth, and symbolism (Shaw and Jones: 25, 2005).

The branch of consumer behavior connected with cognitive psychology and handles consumer information processing is akin to the new strand of economic analysis that postulates costly information and, consequently, price-search behavior.

In the sixties of the past century, consumer behavior literature developed comprehensive models of buyer behavior. The two most well-developed models of consumer behavior are found in Engel et al. (1968) and Howard and Sheth (1969) (Shaw and Jones: 26, 2005), with a scope that goes far beyond purchasing and even consumption. It is a branch of

consumer behavior that finally evolved into research covering the whole spectrum of the social sciences. It can claim itself as a separate discipline rather than a school of marketing thought. Our interest in it emanates from our need to offer an alternative to consumer behavior's economic theory without delving into the other social sciences usually connected with its marketing branch.

In contrast with the theory of demand and supply, an interesting class of consumer decision-making models, CDM, has arisen within the field of marketing. Such models explicitly recognize price searching activities within a more realistic environment than assumed by the neoclassical theory of demand. A survey of some of these models is found in Milner and Rosenstreich (2013).

The earliest model of this type is the Nicosia Model of buyer behavior (Nicosia, 1966; Jones et al., 2011). Its first comprehensive buyer behavior model consists of four *fields*: the communication of information field, the search and evaluation field; a decision field; and the behavioral outcomes field. It is from the marketer's perspective rather than the consumer's perspective.

Nicosia's model was later revised (Engel et al., 1968) to include feedback or a 'search' loop, which allows for iterations of partial decision-making. After doing some search, a consumer opts out of finishing before making a decision, as in *window shopping*.

Some criticized the model for its linearity, claiming that the consumer decision-making processes do not necessarily occur in a set sequence (Milner and Rosenstreich: 10, 2013; Brinberg & Lutz, 1986) some even claim that they occur concurrently (Milner and Rosenstreich, 2013; Phillips & Bradshaw, 1993). Another problem is that the model implicitly assumes a type of neoclassical rationality, by which the consumer can identify and evaluate all alternatives to choose the best. Milner and Rosenstreich (2013) offer services as examples of commodities whose qualities can hardly be assessed by consumers. In particular, financial services stand out as being difficult for consumers to evaluate. The same applies to medical and educational services.

Howard and Sheth (1969) define the relationships between variables in a more specific way, with a richer menu of marketing variables and social influences. The flow of information moves through inputs (marketing and social stimuli), to perceptual constructs, attention and infor-

mation search, to learning constructs (motives, choice criteria, brand comprehension, leading to an attitude (confidence, intention, and satisfaction), to finally reach outputs (purchase, intention, attitude, brand comprehension, and attention). Furthermore, some exogenous variables are included for influencing consumer perception and learning. Our economic theory of consumer behavior focuses on information search as the common denominator from the buyer's vantage point. It leaves the other variables related to influencing consumer's decisions in marketing. Keeping in mind the complexity of the model testing (Farley and Ring, 1970) was followed by many controversies.

The McCarthy et al. model (Milner and Rosenstreich, 13. 2013; McCarthy et al.; 1997) dominates the 21st-century marketing and consumer behavior textbooks. It is just a modification of the Engel et al. model (1968) with some minor changes and clarifications, with some of its precedents' weaknesses. Like linear processes, it depicts a limited and counter-intuitive influence of social nature and others.

Therefore, we can conclude from the CDM that we are on the right track when we use price searching behavior as a basis for studying consumer behavior. It is rather assuring for those who wish to deviate from the neoclassical model.

A NEW THEORY OF DEMAND

Islamic economists cannot carry the burden of neoclassical economics with all its defects and *faux pas*. In principle, we ought to divide the responsibility of reconstructing economics and change the received doctrine to rid it from all criticism levied against neoclassical economics from different sources. Therefore, we must leave some room for all economists to participate in this noble task. However, to proceed further, Islamic economics finds itself obliged to treat some of the many neoclassical weaknesses. The subject of consumers' behavior and the theory of the firm have been heavily criticized in this chapter and ch. XII, we provide an alternative construction. However, we present it as a candidate to be discussed by all economists. A discussion would find whether it can be modified and later adopted, or some better alternative could be found.

Hopefully, if the new theoretical structure is adopted by Islamic economics to move towards more realism, it would separate Islamic economics from neoclassical economics. The former would have a new foundation of microeconomics that can be appropriately tied to the rest of the

analysis. An even brighter consequence would be realized, should the new theory be adopted by mainstream economics or at least used as a gate to revamp economic theory. It may be a farfetched expectation.

I. THE PRICE-SEARCHING ENVIRONMENT

Before we attempt to derive the market demand curve, we must reconstruct our vision for a new theory. Such theory must part with the stable equilibrium construction and the related extreme rationality, strong reductionism, and instrumentalism. The environment within which we aim to do our analysis is marred with costly information and consequently a price-search behavior. Furthermore, the household is the same as the one we defined in Chapter V, as *homo ordinarius*. Although it is admittedly a person, his/her gender is irrelevant in our analysis; after all, it is only a mythical unit of study. Therefore, we will use the pronoun “it” instead of her/him due to the peculiarity of the English language.

Our *homo ordinarius household* has unique preferences that cover a limited number of commodities and others' well-being, including kith, kin, neighbors, and fellow citizens. The number and composition of commodities upon which household preferences are defined vary from one household to another. In other words, none of our household preferences can be defined as overall existing or even a vast number of commodities. Everyone would be interested in a subgroup of available commodities while not bothering with defining its preferences beyond his group. The commodity group would be different for each individual. Moreover, the alternative combinations would also be limited, as every household would not settle on a consumption pattern as the composition of its commodity group and the number of alternative combinations would change from time to time.

In this setup, the concept of scarcity under costly information must be redefined with the *homo ordinarius* limited sphere of choice, which changes with more information and expands with higher income.

The *homo ordinarius household* has bounded rationality limited by its desire to decide the lowest possible cost. Its ability to identify several available options for each decision it makes is also limited. Furthermore, it is a communicative household that stays in touch with several sources of information. Such sources encompass proximate households, popular websites, shopping applications, and other advertising outlets to collect information while economizing on its search cost.

Prices discovered through search are not equilibrium prices. Firms that are not aware of any equilibrium margin set their prices on a *cost-plus* basis. Firms experiment with price-setting while monitoring their inventories to see whether it would be advisable to increase or decrease their price margin. They adjust their prices through regular or occasional discounts, haggling with buyers, and extra services. Moreover, because of facing price-uncertainty and having no way to calculate an equilibrium price, contrary to the neoclassical claim, they keep excess production capacity in terms of physical capital to stand ready to add to their inventories when required.

Whether we can aggregate individual demand curves requires extra care⁷¹. The fact that we have households, each with unique preferences that change with income (no neutral or homothetic commodities), complicates the process of aggregation. Besides, we must consider household interactions with each other and their proximate sellers. Aggregation of individual demand schedules would not be possible. Intuitively, aggregation of actual purchases for a market or an economy is possible. Once we do so, we can think of an alternative construction for the market demand curve. Since we know that individual consumers would interact in any market, which the neoclassics deny, we must attempt to describe their interaction to account for their emergent behavior.

Elements of the interaction among consumers is the exchange of information obtained through search, namely through encountered proximate households and visiting proximate sellers, in addition to the imitation of other households. Visiting suppliers could be a means to receive new information from other households indirectly, through lines, shortages, and like phenomena. The more our *homo ordinarius* meets others over time, the more information it obtains about prices and what is more common as a consumption pattern⁷². We can consider the market not as the aggregate market for a commodity, where all consumers demand the same commodity, but a small localized market whose size differs from one commodity to another and one consumer to another.

⁷¹ See footnote 65, page vi-185

⁷² Demonstration effects are the effects on the behavior of individuals caused by observation of the actions of others and their consequences, first suggested by Thorstein Veblen (1899).

For example, vegetables and fruit are sold in neighborhood stores and supermarkets. Clothes are sold in clothes shops, and cars are sold at car suppliers. Admittedly, the number of neighborhood vegetables and fruit stores are large, each commanding a localized niche. The number of supermarkets is smaller; each has its niche. The same is true for car suppliers, etc. Households with higher income, who have access to personal transport and modern communications, would search at a broader scale than lower-income households. Search activities would also increase with the percentage spent on a particular commodity out of income. Commodities with larger income shares would be sold in markets with wider boundaries than otherwise.

We will consider each shop or supply outlet as a submarket. The submarket has customers who regularly visit and purchase. It faces a submarket demand curve of its clientele, which changes from time to time, with people moving from one residence to another and occasional and seasonal visitors. It faces competition from other submarkets and occasional invaders⁷³. Submarkets together make a wide-market.

Therefore, we can conclude that our theory would imply that the neoclassics called “market demand” is no more than the demand by a group of often proximate households, faced by a firm selling a commodity in its niche market. Therefore, we need to account for households’ emergent behavior before seeing whether we can aggregate demand in each of such markets.

INTERACTION AMONG HOUSEHOLDS

Proximate consumers would compare the information they corrected regarding the prices of the commodities of their common interest. It means that sets of commodities in which each is interested are not the same. For a specific neighborhood, consumers would share a small subset of commodities representing the intersect of the sets of commodities of interest to all neighbors. A comparison of prices found among shoppers would be one way to price searching.

As each household compares the prices of his commodity subset that intersects with other proximate households, he can confirm that some prices cannot be made lower through further search. The reaction func-

⁷³ Occasionally in certain country cities, farmers bring their produce on trucks and sell them on the streets.

tion would be to compare the price that one has with the price found by others and register the lower prices as new information. When a price stays intact during such a comparison, the household would decide to purchase. The time involved in such a comparison should be small. While lower prices are desirable, the satisfaction of wants is also urgent. The comparison could lead to information used for a specific time until an indication comes about to update information.

THE PRICE-QUANTITY RELATIONSHIP

Despite its clumsy structure and insistence on assuming an extreme form of rationality, so calculative that it falls beyond any human being's ability, the part of the neoclassical analysis related to the individual downward-sloping demand curve survives the neoclassical critique. In other words, relaxing such restrictive assumptions in favor of bounded rationality, price searching behavior, and unique individual preferences will prove that the individual demand curve is robust. Therefore, we can accept the concept of a downward sloping individual demand curve as a basis but with some fundamental modifications for the rest of the market.

Why would a homo-ordinarius purchase more at a lower price? First, it is a way for wealth conservation, one of Shari'ah Maqassed. Second, it uses commodities to fulfill its biological needs, as food, clothes, and shelter, and other necessities at a lower cost. Third, its use of some other commodities for additional requirements that may be logistical (transport); physical wellbeing (sports and medical services) would be fulfilled at a lower cost. In other words, we prefer to explain human demand for commodities not by a psychological feeling, like a utility. It is rather explainable by fulfilling fundamental and objective requirements. It has limited resources and allocates them among different requirements justifies buying more of a typical good at a lower price. Some of the benefits of a lower price (an increase in real income) can be used to satisfy other requirements.

As to the individual demand curve, we first argue that the quantity demanded would be defined as units per unit of time (e. g., day). Second, the quantity demanded would increase with a decline in the price of the same good. Due to satiation, the rate of increase diminishes with a price

decline⁷⁴. The quantity demanded would further increase with the associated rise in real income due to the decrease in price for normal goods.

demand function

We start with a demand function of three variables.

$${}_j q_i^d = f({}_j p_i, {}_j y_i, {}_j t_i) \dots\dots\dots (3)$$

Where (${}_j q_i^d$) is the quantity demanded by the (j^{th}) individual of the (i^{th}) commodity, (${}_j p_i$) is the price of the (i^{th}) commodity, and (${}_j y_i^d$) is real income evaluated using (${}_j p_i$). Meanwhile, the first derivative of (${}_j q_i^d$) concerning:

- ${}_j \alpha_i = \frac{\delta {}_j q_i^d}{\delta {}_j p_i}$: is negative, while the second derivative is also negative.
- ${}_j \beta_i = \frac{\delta {}_j q_i^d}{\delta {}_j y_i^d}$: is positive for a normal good. The second derivative is negative.
- ${}_j \gamma_i = \frac{\delta {}_j q_i^d}{\delta {}_j t_i}$: depends upon certain critical events that happen over time.

For example, whether demand is seasonal, e.g., demand for summer clothes increases in summer, demand for fruit decreases when it is in season, demand increases with growing real income over time, etc. It also depends on whether the commodity is consumed regularly (e.g., commuting, eggs, bread) or occasionally (e.g., flying). We assume that (${}_j \gamma_i$) reflects both gains in information over time and gains in income growth from sources other than changes in prices predominantly. It is positive for normal goods, decreases with the increase in price, as new information becomes increasingly discouraging.

1. ALGEBRAIC EXAMPLE, WITH NUMERICAL VALUES:

Let us start with a demand function of the following form:

$${}_j q_i^d = ({}_j p_i)^{\alpha_i} \cdot ({}_j y_i)^{\beta_i} \cdot {}_j t_i^{\gamma_i} \dots\dots\dots (4)$$

Where (${}_j q_i^d$) is the quantity demanded by the (j^{th}) individual of the (i^{th}) commodity, (${}_j p_i$) is the price of the (i^{th}) commodity observed by household (j)⁷⁵, (${}_j y_i$) is real income of household (j) evaluated using (${}_j p_i$)

⁷⁴ Notice that, contrary to the neoclassics, our assumptions imply satiation.

⁷⁵ Prices would be observed by a household in its proximate niches, which are accessible to its price search.

and $({}_j t_i)$ is the time from household (j) perspective related to commodity (i). Meanwhile, the first derivative of $({}_j q_i^d)$ concerning:

Let us start with some postulates regarding the parameters of the demand function.

First, (α) denotes the first derivative of the quantity demanded concerning the price, or the first derivative of the quantity demanded concerning the price must take a negative value. In other words, the decline in price causes the quantity demanded to decrease. Its parameter is also postulated to decrease with each price rise due to satiation. In other words, the second derivative of the quantity demanded concerning the price is negative.

Second, (β) denotes the first derivative of the quantity demanded concerning real income (nominal income divided by the price. It is positive for normal goods. The second derivative of the quantity demanded concerning real income is negative due to the increase in diversity of commodities consumed as real income increases and the income share of each commodity declines. Specifically,

- ${}_j \alpha_i = \frac{\delta {}_j q_i^d}{\delta {}_j p_i}$: is negative, while the second derivative is also negative.
- ${}_j \beta_i = \frac{\delta {}_j q_i^d}{\delta {}_j y_i}$: is positive for a normal good. The second derivative is negative.
- ${}_j \gamma_i = \frac{\delta {}_j q_i^d}{\delta {}_j t_j}$: depends upon certain critical events that happen over time.

For example, whether demand is seasonal, e.g., demand summer clothes increases in summer, demand for fruit decreases when it is in season, demand increases with growing real income over time, etc. It also depends on whether the commodity is consumed regularly (e.g., commuting, eggs, bread) or occasionally (e.g., flying). We assume that $({}_j \gamma_i)$ reflects both gains in information over time and gains in income growth from sources other than changes in prices predominantly. It is positive for normal goods, decreases with the increase in price, as new information becomes increasingly discouraging.

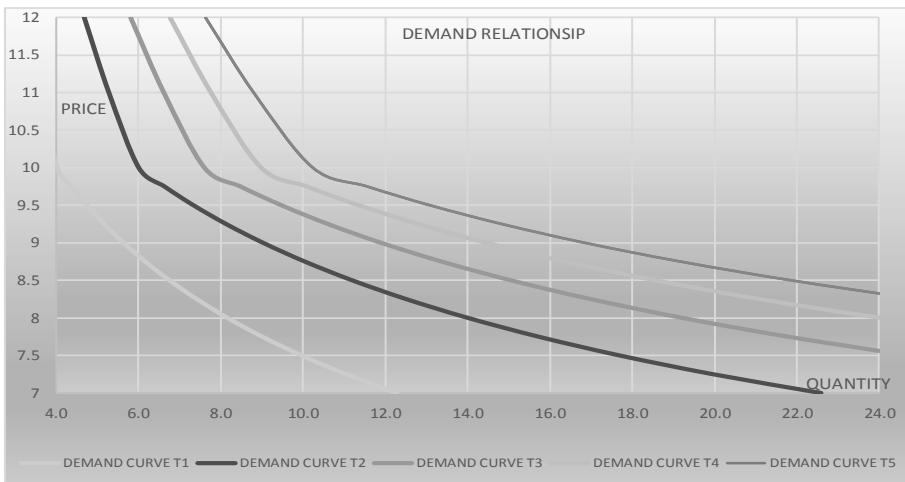
Third (γ) the first derivative of the quantity demanded concerning time, which reflects both gains in the information that encourages the

household to buy, and gains in income growth from sources other than changes in prices. It is positive for normal goods. It is assumed to increase with the price increase, as people find it more worthwhile to search and collect more information when the price rises. The postulated demand curve can be drawn as follows.

TABLE 1: NUMERICAL VALUES FOR THE TIMED DEMAND CURVE

$j\alpha_i$	$j\beta_i$	$j\gamma_i$	j_t in time units	QUANTITY DEMANDED T1	QUANTITY DEMANDED T2	QUANTITY DEMANDED T3	QUANTITY DEMANDED T4	QUANTITY DEMANDED T5	PRICE	REAL INCOME IN COMMOD UNITS y/p
-0.05	0.75	0.88	2	12.3	22.6	32.3	41.6	50.6	7	14.29
-0.05	0.725	0.855	4	11.0	20.0	28.2	36.1	43.7	7.25	13.79
-0.05	0.7	0.83	6	10.0	17.7	24.8	31.5	37.9	7.5	13.33
-0.04	0.675	0.805	8	9.0	15.7	21.8	27.5	32.9	7.75	12.90
-0.04	0.65	0.78	10	8.2	14.0	19.2	24.1	28.6	8	12.50
-0.04	0.625	0.755		7.4	12.5	17.0	21.1	25.0	8.25	12.12
-0.04	0.6	0.73		6.8	11.2	15.1	18.6	21.9	8.5	11.76
-0.03	0.575	0.705		6.2	10.1	13.4	16.4	19.2	8.75	11.43
-0.03	0.55	0.68		5.6	9.0	11.9	14.5	16.8	9	11.11
-0.03	0.525	0.655		5.2	8.1	10.6	12.8	14.8	9.25	10.81
-0.03	0.5	0.63		4.7	7.3	9.5	11.4	13.1	9.5	10.53
-0.02	0.475	0.605		4.4	6.6	8.5	10.1	11.6	9.75	10.26
-0.02	0.45	0.58		4.0	6.0	7.6	9.0	10.2	10	10.00
-0.02	0.425	0.555		3.6	5.3	6.6	7.8	8.8	11	9.09
-0.02	0.4	0.53		3.2	4.7	5.8	6.8	7.6	12	8.33

FIGURE 1: TIMED DEMAND CURVE



Since t_4 is longer than t_3 , t_3 is longer than t_2 , and t_1 is the shortest period. We can expect the demand curve to move up to the right as time passes due to more information obtained and less uncertainty about the

prices available. However, the individual's demand curve's rightward movements would be expected to get smaller and smaller with more search. The result of extra search becomes less attractive to the consumer. At such time, he may stop searching and make a purchase at the lowest available price or stop his window shopping without purchase. Therefore, we will call such a demand curve changes by time *timed demand curve*.

Those who expect a positively sloped supply curve to intersect one of the above demand curves in the neoclassical theory would be disappointed. We invite them to wait until we look into the firm behavior.

SEARCH BEHAVIOR ON BOTH MARKET SIDES

In such an environment, any household behavior would exhibit a negative relationship between price and quantity demanded normal goods. However, its demand schedule would cover a limited range by its income constraint. As an example, a household with an income of \$100,000 per annum would have a downward sloping demand curve for personal transport that ranges between \$5000 and \$10,000 a year. Its downward sloping demand curve would start at a price and a quantity of \$5000 up to \$10,000 as personal transport decline in price but does not go any further.

Moreover, this household is not interested in all or even most commodities that are available, but only a small group limited to its requirements within its budget constraint. Our household would not attempt to figure out all the possible bundles of combinations within its commodities of interest. The household would find it more practical to focus on a small number of alternatives that can be managed through its price-searching activities. Its price search activities would not encompass all suppliers in its country. Still, they would be limited to close locations, where the components of its search cost, e.g., transportation and location costs, would be manageable.

Therefore, we can accept that our price-searching household limits its search within a small group of commodities. It focuses on a small number of combinations available with a limited number of closely located and proximate suppliers.

Through price search, each household (j) has a *target* price, $({}_j p_i^a)$ for a commodity (i) that summarizes its collected information. Its search

would not be infinite as search cost paid for through its budget constraint. Its search effort would depend on the budget share spent on a particular commodity. Higher-price commodities, e.g., household appliances, residential housing, personal transport, etc., would attract more search activities. Furthermore, there is the price found *nearest to the target* price for the same commodity, (${}_j p_i^m$). His quantity demanded a normal good would depend on how the difference between the target and nearest price change over time (during the search period). In other words,

$${}_j q_i^d = f \left[{}_j q_i^o, \left(\frac{d({}_j p_i^m - p_i^a)}{dt} \right) \right] \dots\dots\dots (5)$$

(${}_j q_i^o$) is the consumer demand rate based on the information available to the consumer before starting price searching. Meanwhile, ($d({}_j p_i^m - p_i^a) / dt$) is the adjustment to his rate of demand due to his search activity and the resulting change in the gap between the target and nearest price over time. It would be hasty to think that the search would stop as the nearest price becomes equal to the target price so that the derivative of the difference concerning time is zero. We must instead admit that the target price would rarely be reached, although it may be occasionally exceeded. Search activities would stop when the household finds that the nearest and target price gap is no longer worthy of improving by a further search. It is perhaps reasonable to assume that excess demand rises when the difference between the target and nearest price narrows by time and vice versa.

We need to account for the emergent behavior or the interaction between individuals. For each consumer, the purchase point occurs when the change in the gap between the nearest and target price declines with time and reaches a level beyond which further improvement would not justify searching. At some point, the consumer decides to stop searching and make a purchase. The supplier adjusts his price depending on how the deal is struck and how the inventory is affected.

When customers repeatedly claim to the supplier that the same product is sold for a lower price somewhere else, ask for a discount, or insist upon extra services, like delivery, installment, warranty, or maintenance, the supplier would try to verify and adjust its information accordingly. Interaction between suppliers and their customers plays a role in con-

cluding certain activities for some suppliers and some households. Others would continue to search as usual.

When the climax of price searching ends with a purchase, we face two possibilities. The first case is when the price searching is progressively successful. In other words, the consumer finds a lower price as he moves from period t_1 to t_4 . In this case, the consumer buys the price t_4 the quantity indicated by the intersection of its demand curve with the supply curve. Such intersection is to be shown in the next chapter. If at t_4 the price is not found to be the lowest, the consumer backtracks to previous demand curves and goes to where he found the lowest price. He then makes a deal set by his last demand curve with the related firm's supply curve.

IMPLOSIVE RIPPLES

Each new piece of information enters the household space adds a movement to another demand curve. It is similar to a stone thrown into a lake with still water, causing a ripple. Such stones keep falling and causing ripples as long as the household keeps searching and gets hold of new information. The trigger of its search activities is not random but the expected gain in lowering prices at the following step. We can also consider the ripple ridges as the moving demand curves if we divide each ripple into two half imperfect-circles. The demand curves would be moving inward in an imploding ripple. It is perhaps the way such household disequilibrium can be animated.

CHAPTER XI: SRAFFA'S THEORY OF THE FIRM

Piero Sraffa (1898 – 1983), an Italian economist, a lecturer of economics at the University of Cambridge, was a Keynes contemporary. He has been most famous for his book *Production of Commodities by Means of Commodities* (1960).

In 1925, he wrote about returns to scale and perfect competition, underlining some doubtful points of Alfred Marshall's theory of the firm. It was amended for British readers and published in 1926 as *The Laws of Returns under Competitive Conditions*.

Major works

In 1927 Sraffa had not yet offered his theory of value for academic discussion. He had maintained a friendship with Antonio Gramsci, an opposition figure to the Italian fascist regime. Gramsci had a prison record during which Sraffa supplied the pens and paper, with which Gramsci wrote his *Prison Notebooks*). Sraffa's problems brought John Maynard Keynes to invite him to the University of Cambridge prudently. Cambridge assigned the Italian economist a lectureship.

Together with Frank P. Ramsey and Ludwig Wittgenstein, Sraffa joined the so-called cafeteria group that discussed Keynes's theory of probability and Friedrich Hayek's theory of business cycles.

Sraffa's *Production of Commodities by Means of Commodities* aimed to demonstrate flaws in the neoclassical theory of value and develop an alternative analysis. Many post-Keynesian economists use Sraffa's critique to justify abandoning neoclassical analysis and exploring other economic behavior models, which we aim for by introducing Sraffa's theory of the firm. Before starting our dynamic disequilibrium theory of the firm in the next chapter, we introduce the reader to the Sraffian idea of why the neoclassical postulate of diminishing returns is unacceptable as it lacks realism.

SRAFFA'S CONTRIBUTION TO THE THEORY OF THE FIRM

I. RETURNS TO SCALE

In this chapter, we intend to sketch suppliers' behavior in a way that significantly departs from the neoclassical approach. Sraffa (1926, 1960), as shown by (Keen, 2011) has expressed healthy skepticism of the neoclassical postulate regarding the returns to scale. In the special case of pro-

ducing a homogeneous product, returns to scale give larger firms a clear advantage over smaller firms. Therefore, we can expect larger firms to push smaller ones out of the market due to their scale advantage. However, nothing of the sort has been observed to confirm small-size firms' total absence.

Keen (2011: 111) points out that the neoclassics solved this dilemma through their long-run U-shaped supply curve. In this fashion, the curve shows an ideal production scale at which the long-run average cost is the lowest. In the long-run, all factors of production can be varied so that increasing returns take place up to the ideal scale, then diminishing returns takeover.

The neoclassics argue that the competitive firm settles at the ideal scale. Many such large-size firms would be safe from new competitors, which produce a lower scale and consequently have a higher average cost. Its argument begs the question of whether such a perfectly competitive arrangement would materialize in reality. Besides, it stays unclear regarding the ideal scale and how many firms would place themselves. For some industries, perhaps we can say that many firms would find a place at the ideal scale, as in car factories. For some other industries, very few firms may reach the ideal scale, as in intercontinental passenger carriers.

However, such industries would not fall into the neoclassical pattern of perfect competition, as technology would, in the long run, change the nature of commodities supplied and how they are produced (Keen, 2011: 111). That exposes the implicit assumption that the long-run average cost curve is constructed, namely, constant technology. To solve this dilemma once for all, neoclassical economists assume constant returns to scale, claiming that size does not matter. Such an assumption would not be convincing as size should generally matter.

II. FIRM MANAGERS AND COST CURVES

Sraffa takes exception with the long-run average cost curve. He disputes its underlying proposition of Increasing then diminishing marginal productivity. The Cambridge economist argues that a firm is likely to Produce at maximum productivity right up until the point at which it confronts diminishing marginal productivity. It, he argues, is only rational for firm managers. According to Sraffa (1926), the marginal cost is constant; then the average cost must be greater than the marginal cost. Therefore, any firm that sets price equal to marginal cost, as the neoclas-

sical economists claim, will make a definite loss. The neoclassical theory of price-setting can only apply when Demand is such that all firms are producing well beyond the point of maximum efficiency.

Therefore, the neoclassical theory depends on labor and capital being fully employed. However, facts stand against the neoclassical claim of full capacity utilization. There has been recorded unemployment of work, usually and wrongfully attributed by neoclassical economists to the labor-leisure choice made by households. Nonetheless, the neoclassics would allege that the unemployed prefer not to work at the wages offered. Moreover, the neoclassics claim that since firms use their capital efficiently, leaving no excess capacity, capital is also fully employed.

Economic data contradicts the neoclassical claim. Even during the boom of the 1960s, the USA industrial idle capacity reached 10%. During subsequent booms, capacity utilization rarely reached 85 percent; It rarely exceeded 80 percent since 2000. Capacity utilization fell below 70 percent in the Great Recession (Keen, 2011: 134). There appears to be a trend towards lower utilization over time, possibly indicating a secular problem. Therefore, the neoclassical law of diminishing returns, based on full capacity utilization cannot be accepted.

Kornai has provided additional evidence (1990: 27; Keen, 2011: 135), which proves that in a capitalist economy, there are unemployed resources of capital and labor, which he claimed to be a significant reason for the relative dynamism of capitalist compared to socialist economies. Competition, insufficient demand, and uncertain future force capitalist firms to innovate to secure the biggest possible share in the industry's demand for itself. Innovation drives growth, which adds to excess capacity. A new factory is built with more capacity than needed for the existing demand. Otherwise, it would become obsolete. Most factories have plenty of excess capacity. Output can easily be expanded by hiring more workers to work with idle capital resources. Firms meet an increase in demand by the employment of more labor and an increase in the level of capital utilization. Kornai proves his point through the evidence in his collected data between 1967 and 2011 about labor unemployment and capacity utilization.

Kornai's theoretical arguments and empirical evidence support Sraffa's reasoning. Diminishing marginal productivity generally appears to be a figment of neoclassical economists' imaginations. For most firms, an in-

crease in production is obtained through both labor and the machinery's currently available capacity. Productivity remains much the same and may even increase as full capacity is approached.

Eiteman and Guthrie (1952: 837), cited by Keen (2011: 146), report how factory managers reacted to different drawings of the shape of cost curves. When asked to choose the drawings most closely resembling the relationship between cost and output levels in their factories, only one of the 334 managers chose the one that looks most like the curves usually drawn in the neoclassical microeconomics textbook. Another seventeen chose curves that looked something like it. Ninety-five percent of the managers chose drawings that did not conform to the standard textbook model, but showed either constant or falling marginal cost.

III. THE THEORY OF PRODUCTION: SRAFA VERSUS THE NEOCLASSICS

Another aspect of the firm's neoclassical theory is its theory of production. Sraffa (1926) argued that the law of diminishing marginal returns would not apply in general in an industrial economy in which factories are designed from the very beginning to contain excess capacity. The idea of adding variable labor to fixed capital appears fanciful from the engineering point of view. However credible it may sound in the armchair thinking of some economists. Sraffa, therefore, argued that in an industrial economy, constant marginal returns would be the more common case. Thus, the marginal cost schedule would be horizontal (rather than rising). Sraffa's argument is a fundamental critique of the neoclassical theory. It crumbles one of its main building blocks, viz, the law of diminishing returns, which is a significant pillar in the neoclassical theory of production

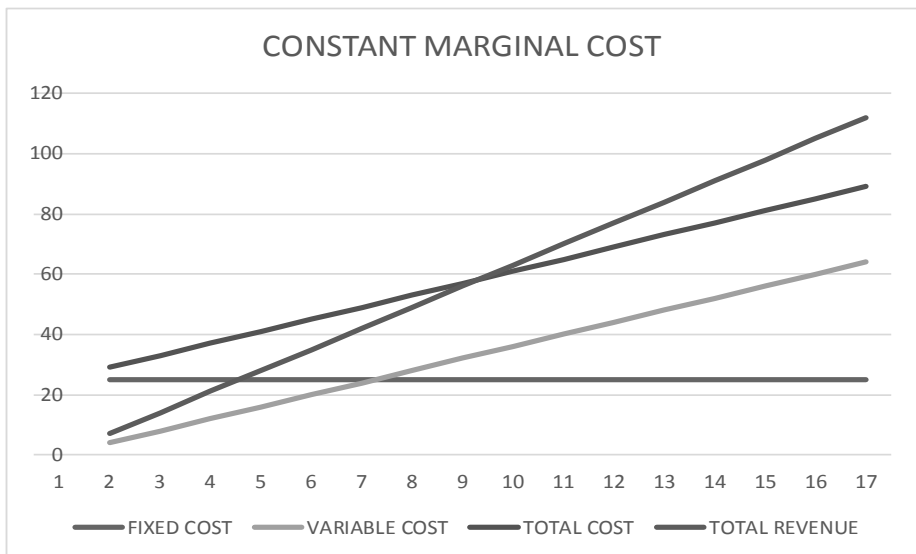
The neoclassical economists postulate an output function that determines the marginal product, determining the marginal cost. As they assume diminishing marginal productivity, the marginal cost of production eventually rises to equal marginal revenue. Their logic for the firms' equilibrium starts with the assumption that firms maximize profit. The equality between the rising marginal cost and negatively sloped marginal revenue maximizes profit. In this fashion, the law of diminishing returns determines the level of output.

In contrast, if we took Sraffa's constant marginal cost argument, the output function becomes a straight line through the origin, just like the total revenue line – though with a different slope. If (the slope of revenue

is greater than the slope of the cost curve, after meeting its fixed costs, the firm would make a profit (equal the difference between total revenue and total cost) from every unit sold. The more units the firm sells, the greater its profit would be.

We can introduce a constant marginal cost to the firm's neoclassical theory under perfect competition. There would be no limit to the amount a competitive firm would wish to produce in this case. The neo-classical theory could not explain how firms set their production. Each firm would want to produce an infinite amount.

FIGURE 2



Sraffa attracted our attention to the conflict between the two neoclassical assumptions. First, some factors of production are fixed in the short run. Second, the supply and demand schedules are independent of each other. The irony is that the two assumptions could not hold simultaneously. If a factor of production were fixed in the short run, supply and demand would not be independent. Every point on the supply curve would be associated with a different demand curve. If supply and demand were justifiably independent, no factor of production could be fixed to justify the constant marginal costs of production.

IV. THE CLASSICS AND DIMINISHING RETURNS

Sraffa noted that the *classical* school also had a *law of diminishing marginal returns*. It was not a part of price theory but rather a part of the theo-

ry of income distribution used to explain rent determination. Farming would start with the best land available. It would then continue to use the land of lesser quality. As the population grows and agriculture expands, progressively lower-quality land is used. Lower-quality land produces a lower yield per acre than the better land. Diminishing marginal returns occurred as the quality of land used in farms fell. It was not related to the relationship between fixed and variable factors of production.

Therefore, we can see that neoclassical economists applied the classical law of diminishing marginal productivity incorrectly in the context of a neoclassical competitive economy. In this economy, they assumed that each firm is small relative to the market. Therefore, it cannot influence the price. They also assumed that the factors of production are homogeneous so that the falling quality of inputs couldn't explain diminishing marginal productivity. Instead, they argued that productivity could only fall because the ratio of the *variable factors* to the *fixed factors* exceeded some optimal level.

Therefore, we can ask when it is valid to regard a given factor of production – say, land – as constant. Sraffa would answer that it can be justified when industries were defined very broadly. However, when you define industries so broadly, the assumption that demand and supply schedules are independent is no longer valid. In agriculture, broadly defined, factors heavily used (such as land) are fixed; additional land is obtained by converting land from one use (housing or tourism) to another use, e.g., agriculture.

Switching land from one use to another is difficult in the short run. Such switching would cause the agriculture industry to face diminishing returns. Moreover, a broadly defined industry is so big that changes in its output affect other industries. Increasing agricultural output would eventually affect labor prices because workers would be attracted to other industries. It will also affect the cost of the 'fixed' input, like land. It undermines the assumptions that demand for and supply of a commodity are independent; one market cannot be studied in isolation from all other markets.

Increasing the supply of agricultural products leads to land and labor price changes. The distribution of income between landowners and laborers changes. Since the neoclassics construct the demand schedule under the assumption of no change in income distribution, the increase in

the supply of agricultural production leads to it changes in the demand curve. There will, therefore, be a different demand curve for every different position along the supply curve for agriculture. When agriculture is broadly defined, it is impossible to draw independent demand and supply curves that intersect in just one place.

Sraffa's argument regarding the impossibility of defining an industry so broadly that one of its factors of production becomes fixed, and at the same time assume independent demand and supply schedule, was a precursor of the Sonnenschein-Mantel-Debreu, SMD conditions. Such conditions made the neoclassical way to derive the market demand curve impossible. However, Sraffa carries his analysis from the vantage point to the producer while the SMD makes its analysis from the vantage point of the consumer. Sraffa's analysis allows for an upward-sloping supply curve to be drawn, making it impossible to derive an independent demand curve.

Suppose we opted for a more realistic narrow definition of industry like wheat rather than agriculture. We can realize that diminishing returns are unlikely to exist. In this more realistic case, supply and demand schedules remain independent, but no factor of production can be fixed. Understandably, Sraffa argues that firms and industries will generally be able to vary all factors of production fairly easily. additional inputs can be taken from other industries or garnered from stocks of underutilized resources.

With higher demand for wheat, instead of more intensive cropping, producers can convert some land producing barley or some fallow land – to wheat. Alternatively, they can switch from current crops to wheat. The ratio of variable to 'fixed' outputs will not rise with the output level. The reason is simply that all inputs would be variable. The ratio of one input to another and productivity remain constant as output rises. In other words, we would have constant costs and productivity as output rises. The output will be a linear function of the inputs: increasing inputs by 20%, the output will rise by 20%.

A straight-line output curve results in constant marginal costs and falling average costs. Such a cost structure would present the firm with one major problem: reaching its 'break-even point,' where the difference between the sale price and the constant variable costs of production equal its fixed costs. From that point on, all sales add to profit. Thus, the firm's

objective is to get as much market share as it can. It is not compatible with the neoclassical model of perfect competition.

EMPIRICAL EVIDENCE & DIMINISHING RETURNS

Over 150 empirical studies of firms' costs have unanimously found that the vast majority of firms reported very large fixed costs and either constant or falling marginal costs. The average costs of production fall as output rises. Besides, 95% of the managers chose graphs that did not conform to the standard textbook model but instead exhibited either constant or falling marginal costs (Keen, 2011: 144; Eiteman & Guthrie 1952: 837).

Alan Blinder⁷⁶ (Blinder 1982, 1998) surveyed 200 medium-to-large US firms, accounting for 7.6 percent of the USA GDP. He found that only 11 percent of GDP is produced under rising MC. Firms reported having very high fixed costs that amounted to 40% of total costs on average. Many more firms stated they have fallen, rather than rising marginal cost curves. Such a typical firm's cost structure appears to be very different from the one immortalized by the neoclassics in their textbooks (Keen, 2011: 147).

The neoclassical model of the u-shaped average cost curve and rising marginal cost does not stand theoretical scrutiny. It is based on the assumption that firms have no excess capacity. Furthermore, it does not conform to factual evidence.

SRAFFA & THE EQUILIBRIUM OF THE FIRM

Sraffa argues that the neoclassical theory of the firm applies to a tiny minority of firms that operate beyond their optimum efficiency, do not violate the assumed independence of supply and demand schedules, while maintaining a relatively 'fixed' factor of production that allows them to experience rising marginal cost. Besides, they utilize the greater part of some input to production, which is not essential to the rest of the economy. The majority of industries are better represented by the classical theory, under constant marginal cost, where prices are determined exclusively by costs, while demand sets the quantity sold.

⁷⁶ One-time Vice President of the American Economic Association and vice-chairman of the Federal Reserve Board.

Sraffa finally tackles what constraints firms output if there were no diminishing returns. According to Sraffa, the output of a single firm is constrained by factors that should be familiar to businessmen but abstracted from economic theory, particularly rising marketing and financing costs. To attract consumers to buy its output rather than its rival, it has to increase its marketing expenditures after obtaining the necessary finance.

Besides, products are not homogeneous. Consumers do have preferences for one firm's output over another's. Sraffa emphasized finance and marketing's role in constraining a single firm's size. By assuming homogeneous products, neoclassical economists assume the real-world answer away. They ignore that Consumers are not indifferent between different firms' output. While the price is a factor in deciding their purchases, it is not the sole factor.

We must also note that the neoclassical world is perfect, void of information and transportation costs, etc. In such a world, firms do not need to market their products to all-knowledgeable consumers. Only price (which consumers already know) distinguishes one firm's output from another. Sraffa's contribution has been his claim that such neoclassical postulates are the exception to reality. In most industries, products are heterogeneous; consumers do not know everything, they consider other aspects of a product apart from its price. Even where products would be homogeneous, transportation costs can give a single firm an effective local monopoly. The concept of a competitive market – in which all firms are price-takers – is suspect. Firms in an imperfect environment act like monopolistic competitors. The existence of a demand curve of any shape is suspect. Equilibrium is also a tall order.

Each firm has a product fitting within a broad category, e.g., passenger cars. It is qualitatively distinguished from its rivals in a fashion that matters to a particular subset of buyers. It manipulates the demand for its product but cannot eliminate its competitors and thus take over the entire industry. It persuades a different niche market to buy its product.

To convince Porsche buyers to buy Volvos, it must convince investors & banks that the expense of building a factory big enough to produce for both market niches is worth the risk. The difficulty of marketing beyond a product niche goes to raising finance.

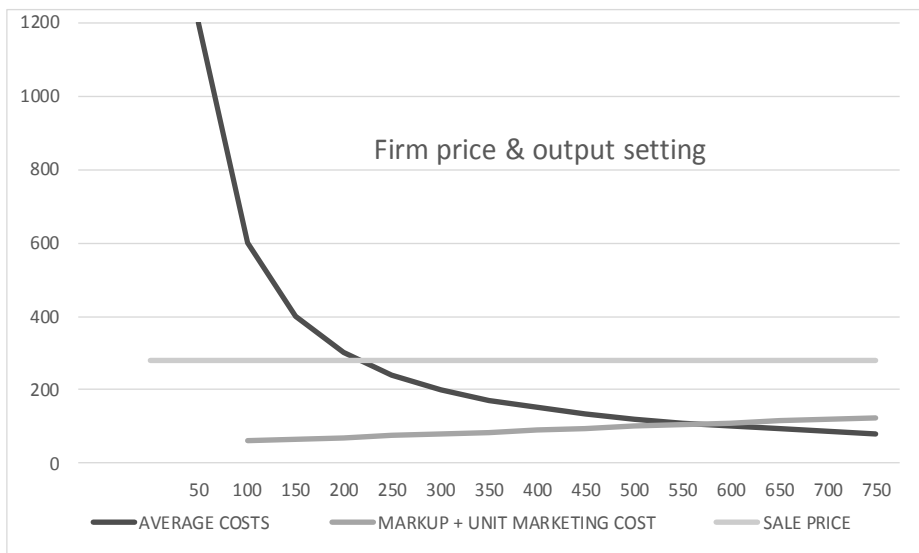
Neoclassical economic theory can't be saved by merely adding marketing costs to production costs to generate a rising marginal cost curve. Marketing is not a cost of production but a cost of distribution. It contradicts the premise that marginal cost rises because of diminishing marginal productivity. It requires acknowledging that products are no longer homogeneous, an essential assumption of the theory of perfect competition. Marketing is a cost of distribution; whose object is to alter the demand faced by an individual firm.

SRAFFA'S MODEL OF THE FIRM

Sraffa proposes a more realistic model that handles real business issues. In this model, the firm expands its sales, its large fixed costs are divided over an increasing volume of sales, and consequently, its average costs decline. Meanwhile, its average variable costs remain constant or fall with higher output. While it tries to exceed its target level of output, it attempts to maintain a target markup that is the difference between the sale price and the average total costs.

In other words, the firm calculates its average total cost (fixed plus variable cost). It sets its target output. At such output, it adds its markup (and its marketing cost per unit) to the average total cost plus the average marketing cost.

FIGURE 3



NEW CONSTRUCTION OF THE THEORY OF THE FIRM

In Sraffa's structure, the firm has set its price and reaches its output target. It is significantly innovative, especially considering the time it was formulated. Yet, it has fallen into the trap of the familiar neoclassical concept of equilibrium. Being at Cambridge, where Keynes was, he must have been familiar with Keynes' opposition to the concept of equilibrium. Moreover, Irving Fisher (1933) had published his article regarding the debt-deflation theory, in which he took exception against the concept of equilibrium. Being a neoclassical economist himself, he was singing outside the flock. Perceiving the firm as a price searcher would negate the concept of equilibrium. The firm would play a different yet more realistic role as a price searcher, facing and interacting with price-searching customers. Meanwhile, the firm will make its marketing efforts and do some haggling with customers while keeping an eye on its inventory. The neoclassical demand-and-supply totem does not exist in our price-searching environment.

CHAPTER XII: THE FIRM AND FLOATING DISEQUILIBRIUM

After benefiting from Sraffa's contribution to the theory of the firm, while remaining in the dynamic disequilibrium framework, we assume firms with bounded rationality, with sufficing objectives acting within the competitive search model. They have sufficing, not maximizing aims. Each operates with a geographically limited niche defined by location, service, and branding. Firms post prices and monitor customers' reactions to their posted prices while monitoring their inventories.

This chapter explains how price-search over time is divided into unique search periods for every firm, leads to a timed supply schedule, which moves upward with each new piece of information. Using the same example employed in the chapter on consumer behavior, we find that the timed supply can be likened to a stone dropping in a still pond, causing an explosive ripple, whose ridges move outward. Unlike perfect circles, Ridges would take the shape of times supply curves.

Let us imagine putting the household dynamic model represented by half an imploding ripple for each household and the firm half exploding ripple. We can expect firm ridges to touch sporadically with households' ridges, with deals made at disequilibrium prices⁷⁷. The two dynamic models interact without completely merging. The neoclassical static Marshallian scissors are finally replaced by household half-ripples' movements over the firm half ripple. The chapter explains this new floating disequilibrium and investigates its economic theory and policymaking implications.

THE FIRM IN A PRICE-SEARCHING ENVIRONMENT

Firms in our new setup do not seek maximum profits. Instead, they are sufficers. They are comfortable as long as they make a margin over and above their costs to keep their inventories at a reasonable level while covering their operating and marketing costs. When confronted with customers who are hesitant to purchase while expressing their desire for lower prices and extra services, firms do not hesitate to haggle. Different

⁷⁷ Such deals of disequilibrium trading appear satisfactory to the firm and the consumers involved. In contrast, they do not appear convincing to other consumers who prefer to continue their price search.

firms have different ranges for haggling. With some products and in some locations, firms might exhibit more flexibility with pricing. Other firms may offer perks, like home delivery, free installment, and extended warranties. Sraffa's cost-plus markup price should, therefore, be replaced with a range. The cost-plus price would be a target price that maintains inventory, covers search costs (including haggling, extra services, discounts, sales, etc.). The firm's price initially sets as an approximation that suits its cost, markup, and marketing, subject to further and continuous adjustments.

Whenever their inventories exceed the desired level, firms carry out sales in certain periods. Sales can be scheduled according to seasons or other social occasions. In addition to sales, they may open outlet shops where they sell some merchandise at discounts. Firms divide their output between their outlets and leading shops to keep their inventories within the desired levels.

We can, therefore, list the parameters related to the supply rate of a commodity produced by a firm⁷⁸ with a localized market as follows

1. The growth in total revenue and total cost
2. The growth in the margin included in its price plus scheme
3. The growth in its inventory compared with its storage capacity.
4. Its search cost, including a survey of proximate suppliers of the same commodity and the cost of haggling, including extra services, discounts, and sales.

Firms confront customers who have demand schedules that change every period. Customers face firms with a range of pricing. Their interaction results in more search efforts on both sides. They would also lead to deals at prices that are not readily determinable but fall within certain ranges. It is a disequilibrium situation that is everchanging. The emergent phenomenon is a real force that turned the neoclassical market into something they have resisted considering for a long time.

I. THE SUPPLY SCHEDULE

We now turn to the market from the supplier's side. In this case, the supply rate can be viewed from two angles. First, the quantity of a com-

⁷⁸ Like households, firms are non-typical. The similarity between units of analysis in microeconomics have rendered the solution to the aggregation problem trivial. We must therefore get out of this part of the neoclassical straight jacket.

modity (i) offered by a producer (k) to sell out of its inventory, at its initially set price (${}_k p_i^0$), before experiencing consumers' reaction is equal to (${}_k q_i^0$). Second, the quantity it is willing to sell at the currently identified price (${}_k p_i^s$) that resulted from price-searching activities while depending on the change of inventory concerning time (${}_j q_k^s$). In other words, a firm (k) offers a supply rate of the (ith) commodity that is equal to an amount that evolves from the initial amount adjusted for the firm's price-search efforts as well as with its desired rate of inventory replenishment. Putting both angles together, we can say that the firm would supply a quantity that also depends on the difference between the initially offered price (${}_k p_i^0$) and the current price resulting from search activities (${}_k p_i^s$).

$${}_k q_i^s = f \left[\left(\frac{d({}_k p_i^s - {}_k p_i^0)}{dt} \right) \right] \dots \dots \dots (6)$$

Where (${}_k p_i^0$) is the initially offered price and (${}_k p_i^s$) is the price adjusted for search activities.

We must add to the above function an indicator of the average (fixed plus variable) cost. Therefore, we can write the quantity supplied by a price-searching firm in a search environment as a function of several variables. We can put them together in the following implicit supply function:

$${}_k q_i^s = f \left[({}_k p_i^s - {}_k p_i^0), \left(\frac{{}_k f c_i + {}_k v c_i}{n} \right), \frac{\partial v}{\partial {}_k p_i^s}, t \right] \dots \dots \dots (7)$$

Where ($\frac{{}_k f c_i + {}_k v c_i}{n}$) is the average fixed plus variable cost, ($\frac{\partial v}{\partial {}_k p_i^s}$) is the

change in inventory due to the change in the price resulting from the price search process, and (t) is time.

The supply (${}_k q_i^s$) is a function of the difference between the initial price announced by the firm (before the start of the search) and the price resulting from the price-search activities, (${}_k p_i^s - {}_k p_i^0$), the average total costs ($\frac{{}_k f c_i + {}_k v c_i}{n}$) (fixed (${}_k f c_i$) plus variable (${}_k v c_i$)), the change in inventory concerning the price offered at the time ($\frac{\partial v}{\partial {}_k p_i^s}$) that depends on the search process results until the current moment and length of time. Explicitly, we can further express the supply function in the following form:

$$kq_i^s = (kp_i^s - kp_i^o)^\varepsilon \cdot \left\{ \frac{(kf c_i + k^v c_i)}{n} + (km_i + k\mu_i) \right\}^\lambda \cdot \left(\frac{\partial v}{\partial kp_i^s} \right)^\phi \cdot kt_i^\omega \dots \dots \dots (8)$$

After adding the markup per unit that is unique to both the commodity and the firm in concern (km_i) as well as the unit marketing const ($k\mu_i$).

The firm offers an initial price (kp_i^o) before starting its price searching activities. Once price searching starts, the process of information collection and haggling with customers will result in a new price to offer (kp_i^s) during the search period. The higher the price resulting from searching activities, the lower will be the difference between the newly discovered price and the initially offered price. The higher the rate of supply, and vice versa. Therefore, the first derivative of the supply rate concerning such price difference would be negative. The lower the $kp_i^s - kp_i^o$, the lower should be the increase in the rate of supply. In other words, the second derivative is positive. It reflects confirmation of the firm’s success in approaching its initial price estimate.

Let us recall Sraffa’s insistence that the law of diminishing returns is a neoclassical myth and the total average cost is either declining or constant. The first derivative concerning the average total cost (λ) would with constant average cost be zero, as suppliers would be happy to supply more commodities as their average cost is constant. They are limited only by financing the marketing cost required to expand their niche. If, even more realistically, the average total cost is declining, (λ) would be negative, as the quantity supplied would increase with declining average costs.

The first derivative of inventory concerning the price offered ($\frac{\partial v}{\partial kp_i^s}$) should be positive. Higher prices, based on the latest search information, would lead to a slower decline in inventories. It means that as the inventory accumulates faster, the supply rate should increase. With higher offered prices and higher inventories, the supply rate rises to get rid of accumulating inventories. It implies a positive second derivative.

The first derivative of the supply rate should be positive concerning time. The passage of time allows for the collection of more information, a wider range, and a further reaching marketing, the first derivative itself could be increasing.

II. A NUMERICAL EXAMPLE

The table below observes the assumed relationships reflected in the values of the parameters. Based on these values, we can draw the firms' supply curves during the four time-spans assumed in a fashion similar to the household case.

TABLE 2: TIMED SUPPLY FUNCTION⁷⁹

ϕ	ϵ	ρ	$\frac{dv}{d p_i}$	ϵ	λ	ϕ	ω	time span	FIXED COSTS	VARIABLE COSTS	TOTAL COST	MARK UP/unit	unit marketing cost	average cost	MARGINAL COST	markup+price+marku p+	pre-search price+marku p+	quantity supplied T ₁	quantity supplied T ₂	quantity supplied T ₃	quantity supplied T ₄	price	$p^0 \cdot p^s$	
0.025	0.1	0.1	1.5	-0.1	0.1	0.025	0.05	T1	7	60000	800	60800	1216	26	3674	0	1242	1541.6	1	2	2	2	300	200
0.03	0.11	0.15	1.75	-0.11	0.15	0.03	0.1	T2	14	60000	1600	61600	616	26	1874	32	642	941.6	2	2	2	2	310	190
0.035	0.12	0.2	2	-0.12	0.2	0.035	0.15	T3	21	60000	3200	63200	316	26	974	32	342	641.6	3	3	3	4	320	180
0.04	0.13	0.25	2.25	-0.13	0.25	0.04	0.2	T4	28	60000	4800	64800	216	26	674	32	242	542	4	5	5	5	330	170
0.045	0.14	0.3	2.5	-0.14	0.3	0.045	0.25			60000	6400	66400	166	26	524	32	192	491.6	5	6	7	8	340	160
0.05	0.15	0.35	2.75	-0.15	0.35	0.05	0.3			60000	8000	68000	136	26	434	32	162	461.6	7	9	10	11	350	150
0.055	0.16	0.4	3	-0.16	0.4	0.055	0.35			60000	9600	69600	116	26	374	32	142	441.6	10	13	15	17	360	140
0.06	0.17	0.45	3.25	-0.17	0.45	0.06	0.4			60000	11200	71200	102	26	331	32	127	427.31	14	18	22	24	370	130
0.065	0.18	0.5	3.5	-0.18	0.5	0.065	0.45			60000	12800	72800	91	26	299	32	117	416.6	19	26	31	35	380	120
0.07	0.19	0.55	3.75	-0.19	0.55	0.07	0.5			60000	14400	74400	83	26	274	32	108	408.27	26	37	45	52	390	110
0.075	0.2	0.6	4	-0.2	0.6	0.075	0.55			60000	16000	76000	76	26	254	32	102	401.6	36	52	65	76	400	100
0.08	0.21	0.65	4.25	-0.21	0.65	0.08	0.6			60000	17600	77600	71	26	237	32	96	396.15	49	74	95	113	410	90
0.085	0.22	0.7	4.5	-0.22	0.7	0.085	0.65			60000	19200	79200	66	26	224	32	92	391.6	68	106	138	167	420	80
0.09	0.23	0.75	4.75	-0.23	0.75	0.09	0.7			60000	20800	80800	62	26	212	32	88	387.75	94	153	203	248	430	70
0.095	0.24	0.8	5	-0.24	0.8	0.095	0.75			60000	22400	82400	59	26	202	32	84	384.46	131	221	299	371	440	60

Following Sraffa's vision, Figure (4) shows a large fixed cost that includes some idle capacity, leading to a declining average fixed cost. Figure (5) shows a horizontal average variable cost due to constant returns to scale, thanks to the presumed excess capacity.

FIGURE 4

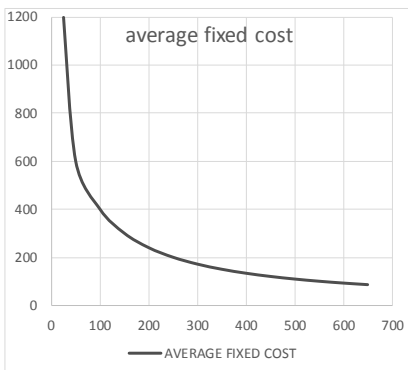
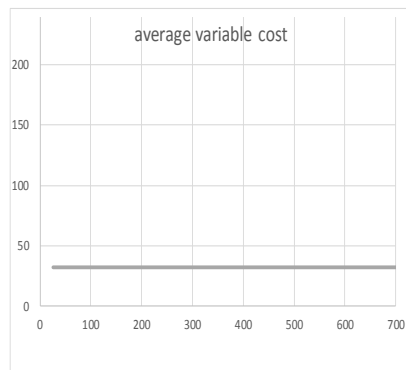


FIGURE 5



⁷⁹ Parameters in this table have been assigned values that have been experimented with at different scales. Yet, such values remain as empirical judgement which would be subject to further verification. However, this model is open to simulation.

FIGURE 6

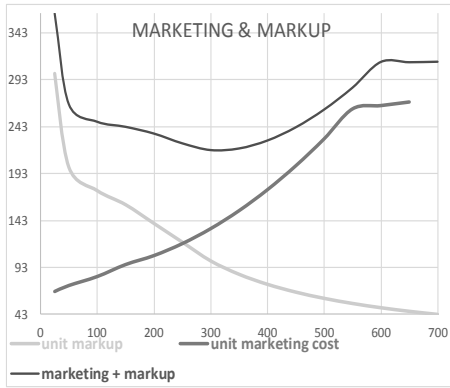


FIGURE 7

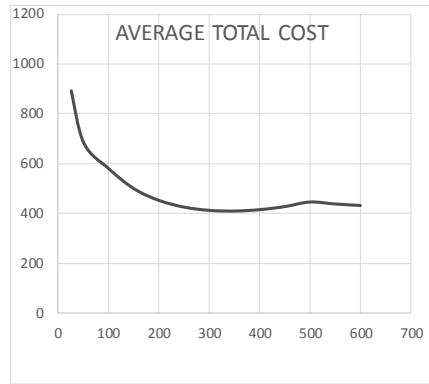
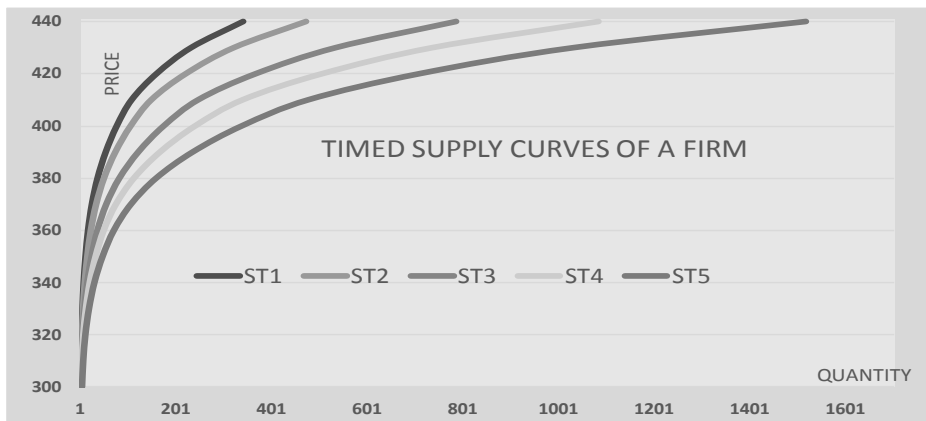


Figure (6) reflects rising unit marketing costs and declining unit markup. Summing fixed, variable, marketing, and markup costs result in the total average cost curve shown in Figure (7).

FIGURE 8: THE TIMED SUPPLY CURVE



We can observe from the table above and the following graph that the supply curve is timed, meaning it changes over time. We are not talking here about the supply changing in the long-run. Instead, the supply schedule of any price-searching firm varies from one “search period” to another; the search period’s length would be measured in days. As the firm encounters more customers and becomes familiar with more firms’ parameters, it can push its positively-sloped supply curve upward. The longer the price searching period, the higher the price or the supply schedule. There is a limit to this process when the firm finds that its post-

search price line cannot be pushed further. Even after some time, the information collected becomes obsolete, triggering a new search process resulting in a new supply curve.

Can households' disequilibrium presented in the last chapter be brought together with the firm disequilibrium? Can both disequilibria stand for a demand and supply cross that shows one unique and stable equilibrium? The temptation to ask such a question comes from the long-time diehard habit of neoclassical-style thinking.

It cannot be done. First, the *firm's customers' timed demand curves cannot be aggregated* due to their heterogeneity and lack of synchronization in search activities. When we consider only one customer's timed demand against the firm's timed supply, we realize that no synchronization between their search activities can be assumed. We have a continuous influx on both the demand and supply sides, which is challenging to graph, except as we explain below, we have animation.

At this instance, we can recall our model of *directed or competitive search* in which buyers search for prices. At the same time, suppliers post their prices based on the available information. Posted prices are subject to change due to the interactions between buyers and sellers. It is the emergent phenomenon conspicuously ignored by the neoclassics).

Each commodity's market is fragmented into niches, each around one supplier, separated by branding, location, services, and advertising. The consumer has a demanding schedule for each period, e.g., day, week, month, etc., depending on the frequency of searching. There is no way for such individual demand curves to be aggregated. Instead of a fixed-point equilibrium postulated by the neoclassics, we have deals made at prices, which are subject to change with the availability of new information becoming available to suppliers.

EXPLODING RIPPLE

Each new piece of information gained by the firm through its interaction with households or intelligence gained about other firms can be likened to a stone falling into a lake with still water. It is the case of a ripple in the lake, whose ridges take the shape of the outward moving supply curves. Looking at the ripple's outer half, we can see that each falling stone pushes the ripple's edges outward to a new position. Such animation is our replacement of the firm supply curves introduced by the neoclassics.

FLOATING DISEQUILIBRIUM

1. The household disequilibrium explained in chapter X is only for one household. Aggregation over households is not possible as each has its unique way of searching and timing. It shares a limited amount of information with few localized and proximate acquaintances and to a different extent with some localized suppliers. Timing cannot be synchronized between price searchers, nor their commodity sets are collectible in one exhaustive set.
2. Aggregation, in this case, would be meaningless. Therefore, we can dismiss the possibilities of constructing a market demand curve, similar to that postulated by the neoclassics, unless we want to end, like they did, by reducing our analysis to the trivial case of one consumer and one commodity.
3. Information is a perishable commodity. New information flows in, and the old information becomes obsolete once time passes. The distribution of further information among households and firms is uncertain and cannot be systematically described in a way that makes it predictable.
4. The firm is equally unique in pricing and searching, and handling haggling with its customers. Aggregating firms' supply curves into a market supply would not be consistent with the disequilibrium state expected in a world of price searching. Their timing cannot be synchronized, nor can their cost functions be standardized.
5. During each period, several deals take place between households and firms. Households buy when they find that further search would not significantly gain price reduction. The firm concerned would have searched, done marketing, and haggling to the extent that it cannot raise its price further. Such deals represent a taboo in neoclassical doctrine as they occur at disequilibrium prices.
6. Each disequilibrium price that succeeds in attracting a deal is not a fixed point resulting from the mapping of market demand and supply curves. Each market defined as a niche for a particular firm has such prices considered a *fuzzy* set. It gets even fuzzier as more types of information are made available to both the firm and households, including changes in exchange rates, income and price expectations, etc.
7. Should a change occur in these fragmented but localized markets, with some households or firms gaining more information, the

search process would be associated with new prices targeted by households and offered by firms. No mechanism would be available to return within any period to the previous disequilibrium. In other words, our floating disequilibrium model is devoid of both equilibrium and stability.

We can expect in our situation the following unorthodox results.

The (i^{th}) commodity-market is fragmented into small markets, each with one supplier and a limited number of household customers. The (i^{th}) commodity appears in differentiated qualities that enforce such market fragmentation. Even if its quality stays the same with different suppliers, location and associated services differentiate it from one supplier to another.

Excess demands and excess supplies used to be defined in neoclassical price theory concerning some equilibrium prices. In our case, there are no such prices. All prevailing prices at which deals are made are not equilibrium prices. Trading is therefore carried out at disequilibrium prices.

With disequilibrium prices, excess demand becomes the commodity that the household wishes to buy over and above what it has on hand, at the currently known but not yet completely searched price. Similarly, excess supply would be equal to the quantity of a commodity a firm is willing to sell out of its inventory at the currently posted price

Excess demands and excess supplies always exist, change over time, and are never cleared. However, as explained above, they are not measurable nor easily identifiable.

Some households may stop price searching by choosing to enter into deals by purchasing some commodities while simultaneously starting and continuing by other households.

Some households may move to other suppliers as a result of their price-search process.

The small localized markets cannot be summed up, as the emergent behavior continues to influence disequilibrium.

Households are by all measures heterogeneous, and so are supplying firms. It is a good indication that the macroeconomic model cannot be derived from the microeconomic environment. We must, therefore, declare the death and burial of strong reductionism. When we look into

macroeconomics in volume II, we will not be concerned with how macro aggregates are related to micro aggregates.

Graphically, we can imagine individual demand curves in each niche are moving in every period to new positions against the supply curves, which are also continuously moving. At any moment, an intersection takes place between a firm's supply curve in effect and one or more of the demand curves, one or more deals would be made at a price indicated by the intersection. Meanwhile, the supply curve keeps moving over time, and so do the demand curves⁸⁰. Several consumers may be buying different quantities of the commodity in question at the same price, or paying various prices, depending on the nature of the market and how much bargaining is allowed.

The information gained by firms can be related to their costs, market conditions reflected in customers' reactions, or their inventories—prices in every niche change from time to time. We can visualize a state of *floating disequilibrium*. Such a state allows for multiple prices, a different price for each niche, and a continuously changing price. Graphically, it would be an animated screen, depicting the floating disequilibrium in one of the many submarkets. Different customers' demand curves enter and keep moving while the same suppliers' supply curves continuously move. Intersections indicate deals struck. When a consumer decides to stop searching and make a purchase, we get an intersection indicating a deal.

To visualize the ripple models presented in Ch. X, and in this chapter, we can imagine a lake with still water. Red stones representing new household information are falling and causing imploding ripples whose *red* edges shape the demand curves. Meanwhile, blue stones are falling in the same center, representing further information to the firm and causing an exploding ripple whose *blue* edges take the shape of the supply curves. The meeting of red and blue ridges registers different prices for deals made with the firm by different households at different times. Such an animation would be our replacement of the Marshallian scissors.

We can draw the following implications from (3) and (5) above:

⁸⁰ The Marshallian demand and supply intersection, that has become a totem for the neoclassics is no longer valid in this model. We need to draw an animation of demand curves moving over time, and occasionally meeting prices offered by suppliers which in turn change from period to another.

POLICY ISSUES

Policymakers' recognition of the institutional arrangement described above and how households float among localized suppliers in a disequilibrium environment would inevitably confront them with several questions. We will provide below few examples.

First: is the market efficient? In other words, does the national economy spend too many resources in support of the search activities? Such a question would be difficult to answer. A better way to deal with it is to find ways to reduce search costs. Therefore, policymakers are invited to consider the necessary mechanisms, safeguards, and trading rules that must be set to increase the efficiency of the system⁸¹.

Second: when tax authorities are interested in levying sales tax, how best it should be levied and applied for a desirable impact balances the tax burden with the tax yield. Obviously, in such an environment, taxes must be levied, if at all, and collected at the suppliers' side. In this case, taxes would amount to a higher markup on commodities, raising prices and increasing search activities. Economizing on search efforts and the way taxes are levied would be interrelated.

Contrast this result with the neoclassical perfectly competitive model, which instantly gains efficiency and has an invisible hand. Such neoclassical mythology is no longer valid. The system is borne inefficient from the beginning. Policymakers have a broad spectrum of institutional activities to improve efficiency.

Third: The search activities' implications in labor markets would have significant employment and growth implications. The labor market is divided into small localized markets in our search environment. Each is organized around a firm that hires labor. Since we have denied the prevalence of full capacity utilization, labor productivity with idle capacity would be rising at best or constant at worst. Laborers who search for vacancies would have to compare not just wages but other fringe benefits in addition to potential career development and location preference. What type of unemployment would exist in such a

⁸¹ In a later chapter, we will find out that price searching can exceed what is required on the consumers' as well as the firms' sides. The extra information collected cannot be sold to others, i.e. internalized to price searchers. It has been termed as Hosios inefficiency. We will also see how Islamic finance can reduce it through offering credit purchase.

fragmented market? Would voluntary unemployment be possible? These points will be considered in volume II.

Fourth, what type of structure would prevail in the capital market? How are investment decisions carried out? How is finance provided? What factors should policymakers consider when designing growth, stabilization, and development policies? How speculation in the financial markets influence stability and growth and how much resources they attract away from product and distribution activities.

Such questions and much more deserve to be handled with severe economic analysis, without being burdened with the neoclassical doctrine. Our attention in the next chapters will treat some of them. However, all conscientious economists are invited to do the same.

CHAPTER XIII: MARKETS & TRADING RULES

This chapter brings out the essential characteristics of an exchange market organized by Islamic economics rules. As we see from further analysis in the next chapter, such rules are not designed to frustrate exchange and limit commercial freedom, but rather to improve market performance and ensure the smooth working of the market mechanism.

The first part is to distinguish between the more stylized yet less realistic market structures, including perfect and free competition and the more common structure of monopolistic competition, or the commodity market that is fragmented into niches by location, branding, and services. The latter market structure realistically arises in a price-search world. The chapter also presents the forms of monopoly, monopsony, duopoly, and duopsony and discusses how they appear through collusion between business and government and how they should be regulated.

Three prohibited transactions can play havoc with the market economy. The first type is *Ghabn*, which is related to cheating. It can be understood as a way of consumer protection. The second is associated with the exchange of mythical nonexistent commodities, or *Gharar*, which boils down to pure risk trading. It would prove to be a source of instability in the market economy, becoming apparent in this and the following chapter. The third type would be *Reba* or interest-based lending activities. Such activities raise serious questions about efficiency, equity, and sustainability, raised and answered in Chapter XIV. Chapters XVII-XIX set the foundations of Islamic finance and explain its economics in detail.

Economists generally agree that exchange in a market economy leads to specialization. One of the important characteristics of the Islamic economic system is risk-sharing. The chapter tries to answer an important question in this respect. The predominance of risk-sharing in an Islamic economics system encourages or hinders specialization. The chapter answers it preliminarily, leaving some room to further empirical tests.

MARKET AND SOCIETY: BASIC CONCEPTS

The market concept started as a place where buyers and sellers meet; commodities are exchanged, sellers supply, and buyers bid for commodities. Based on this perception, markets have gained acceptance as a means to facilitate exchange. Exchange of counter values presumes property

rights of commodities brought to markets by sellers and money carried to markets by buyers. Markets conceptually became a place where market forces of demand and supply interplay. The neoclassics envisaged that such forces would equilibrate to produce a price for each traded good. As previously explained, it was fanciful, as it ignored the interactions among households, among firms, and between firms and households (the emergent phenomenon).

The degree of freedom that prevails in markets influences how societies benefit from the process of exchange. Freedom in markets is not limited to buyers' and sellers' freedom to exchange. It depends on how well property rights are defined and enforced. The legal system plays a vital role in this regard. It also depends on political freedom. In societies under totalitarianism, where a ruling elite and surrounding entourage enjoy more freedom, such upper class will also enjoy more access to markets. It can take advantage of production and exchange than other, often oppressed, classes. An absolute monarchy affords members of the royal family better access to markets to the extent that they would have a better chance of obtaining finance, producing, buying and selling, and accumulating wealth more easily relative to the public. In some cases, they cannot be bankrupt as they are pampered with grants and special treatments. Therefore, we can say that economic freedom cannot be separated from political freedom.

Moreover, markets do not distribute gains from trade equally among economic agents due to differences in talents and skills on the one hand and preferences on the other hand. Those who have the talents and skills to produce the commodities enjoying higher preferences among the public will gain more wealth at others' expense. Talents and skills can be developed and sharpened through education and training; both are investment forms in human capital. Those who can finance more education and training gain more talents and skills than others. The neoclassical claim to the meritocratic distribution of incomes is a mirage.

TYPES OF MARKETS

I. PERFECT COMPETITION

Economists distinguish between two kinds of competition: perfect competition and free competition. Similarly, there is absolute monopoly, duopoly and oligopoly, and monopolistic competition on the sellers' side. On the buyers' side, we can have absolute monopsony, duopsony,

oligopsony, etc. Between competition and monopoly, we can find monopolistic and monopsonistic competition.

Perfect competition is an impossible case, which requires an entirely standardized product, an infinite number of both buyers and sellers, none of whom can influence price and, in addition to zero transaction costs. Implicit in this structure is free entry. It would also require perfect information, zero transportation, and contracting costs. No single market in the world can fulfill all such idealistic conditions at once.

Most of the virtues claimed for free markets, including those mentioned above, rest on the assumption that competition is and remains perfect. In brief, the perfect competition model assumes homogenous products, the number of buyers and sellers is so large that none of them can influence the market by his action, factors of production are instantly mobile between alternative uses, and each one has perfect knowledge of the market. Perfect competition could be no more than a heuristic notion resting on such heroic assumptions. Even if one could magically put the model into operation, it must in the first place kill all romance of enterprise: perfect knowledge must eliminate risk and uncertainty, making innovation insignificant. More than that, the perfect competition must tend to destroy itself because if firms could sell at market price without any limit, some of them would sooner than later acquire monopoly power making competition imperfect.

Firms operate as a go-between two sets of prices: one at which they buy their inputs, including the cost they incur in manufacturing, marketing, and distribution; against the prices at which they sell their output. The gap between the two is seen as a legitimate gain (profit) accruing exclusively to business owners. Should firms not have the temptation to tear the two price sets as far apart as possible to maximize profit for the owners? In the logic of things, firms must attack competition the force of discipline allowing only normal profit, which is just enough to keep their heads above the water. They mitigate competition to acquire pricing power and attempt to block trade gains from flowing to rivals. Brand names, trademarks, and advertising are weapons they use to kill competition. The effort gives rise to various imperfections, including the emergence of monopolies, cartels, and monopsonies. We have been left with as much competition as firms have not been able to eradicate.

II. FREE COMPETITION

Free competition is less unrealistic but is still hard to obtain. Free entry remains a component. The product remains standardized. The number of sellers and buyers would not be infinite but sufficiently large. Each would be a price-taker. Knowledge would be imperfect, but the cost of information would not be prohibitive, i.e., buyers and sellers would search for the best price but within a moderate limit. An example of such a market would be a commodity, e.g., wheat market, where buyers and sellers can meet online to make offers. Transaction costs would also be present but significantly reduced by-product standardization and easy communications.

Free competition can be further complicated by brokers or subscription fees to market users, so that information and transactions costs become more pronounced. It can even be further complicated when traders (buyers and sellers) can trade at the margin (using credit) and through contracts that allow for derivatives, e.g., short-sale, options, etc. Still, we can find free competition to be a tall order.

A more realistic setup can be perceived, where freedom of entry is still maintained but less than perfect. Products can be differentiated in several ways, including location, service, branding, advertisement, and the like. Both buyers and sellers search for the best price. Searching would naturally be limited by the same variables upon which product differentiation is based. For example, location is important when one buys groceries or car fuel. Searching would be limited to some geographic neighborhood. Advertising may also limit the scope of searching. People may prefer to search for commodities in certain outlets where they can find associated services or prefer to look into markets where service is minimum, but prices are expected to be lower. It has been characterized as monopolistic competition.

In monopolistic competition, access to markets is open only in principle. However, firms struggle for their market share and protect it by location, branding, copyrighting, product differentiation, services, etc. To access the market, you have to do the same, i.e., cut out your section, introduce your brand and exercise product differentiation, etc. A good example would be a restaurant row in some cities, where restaurants are located next to one street. However, they manage to differentiate products by selling different menus, providing specialized services through their chefs' expertise, atmosphere, and other complimentary perks.

Shopping centers are a good example, where location plays an important role. Many buyers' presence provides a chance to internalize such benefits by joining the shopping centers. It is therefore common to find in such centers a variety of specialized stores, in addition to restaurants and recreational activities.

III. OLIGOPOLY, THE MONOPOLY OF THE FEW

Oligopoly, the monopoly of the few, takes place when the product is unique with sufficient barriers to entry. Take, for example, computer chips produced by a few companies worldwide. Production of chips requires infrastructure and heavy spending on research and development, R&D. Chips are subject to branding and intellectual rights, which protect producers from new entrants. Other examples include diamond mining companies with exclusive franchises inherited from colonial powers in Africa and Asia. A third example is the yearly payments to the colonial powers themselves through forced arrangements with colonized countries' central banks. Countries with "hard currencies" automatically earn seignorage when their currencies are used in international trade or kept as a store of value. Under certain conditions, oligopolists will find it beneficial to collude and set prices or set quantities produced unless such collusion can be made illegal.

IV. MONOPOLY AND MONOPSONY

An absolute monopoly occurs when only one product is made available by a single seller. In some communities, water, power, land, air transportation, and some communication services are supplied by one seller. In this case, the government provides a franchise or entry barrier to allow such monopolists to control the market. Examples include the Suez Canal (owned by non-Egyptians, the Panama Canal, the Bosphorus straight (Turkey is prohibited from levying passage fees). More common examples include the companies that supply your house with electricity, water, and gas.

A monopoly involves one or few sellers with some barriers to entry. Such barriers could be physical, like the only gold or diamond mine in a country. The barrier could be legal, like owning a brand name or some intellectual copyrights. It could also be based on product differentiation or geographic location. Chocolate manufacturers create brand names with differentiated packaging for their products. Coffee beans and cocoa

powder are sold under brands owned by companies residing in non-coffee and non-cocoa producing countries. Such producers earn profits far above what local producers make through selling their produce. They advertise to create the impression among potential buyers that their product has real or imaginary qualities to create a unique or *niche* market. Diamond designers and cutters sell their wares for astronomical prices, while countries hosting diamond mines live abject poverty. Little convenience markets that carry common groceries use their proximity in addition to extended working hours to attract a group of customers. Its type of special market created through product differentiation is called monopolistic competition.

PROHIBITED TRANSACTIONS

I. GHABN

Market exchanges must be done under a Shari'ah-based market order in which the effects of monopoly and monopsony can be eliminated or offset. Besides, Shari'ah ordains the prohibition of Ghabn, deception, or cheating, to the extent that a cheater would not be considered a Muslim. Enforcing the rule of *truth in trade*, which is synonymous with *consumer protection*, is an integral part of the market structure.

Ghabn means cheating through any means by sellers to make buyers accept to buy at a higher price than the just, true, or prevailing price. It can also involve cheating by buyers to make sellers willing to sell their commodities at an unjust price. An example of sellers' Ghabn sells a used car close to retirement by giving it a good wash and fixing its mechanics to appear workable for a few days. The buyer may be cheated into buying the car for a much higher price than its worth. Conversely, the buyer of a reasonably useable vehicle may be able to persuade its seller that the vehicle is a lemon so that he/she accepts a lower price. In both cases, Ghabn leads to injustice, where one party in exchange gains at the expense of the other party

II. GHARAR

In addition to Ghabn, Shari'ah prohibits Gharar, which is trading in uncertain objects, or what is equivalent to gambling. An example is when one sees a fancy car placed in a lottery and is made to think that by buying a lottery ticket, he/she can acquire the vehicle whose price is many folds the lottery price. Purchasing a lottery ticket is like buying an imagi-

nary or unreal thing. It gives a feeling that the buyer will win the car, however remotely, the probability of this might be. It is a gamble. The lottery buyer (gambler) loses the lottery ticket price, which the seller gains. The sums of gains and losses are equal to zero. It is why economists call such gambles zero-sum games.

The rationale for prohibiting Gharar is the same as that of banning gambling. It is a transaction that, contrary to trade that benefits both parties, the benefit goes to one party, and the loss goes to another. It is, therefore, a type of redistribution without justification. Perhaps there might be risk-loving people, to the extent that they enjoy losing their wealth on gambling tables. But from society, redistribution must be justified.

III. REBA

The rationale for prohibiting Reba or interest is more involved and requires a more detailed explanation. It is equivalent to banning the trade of present money against future money or debt at a premium. In the coming chapters, we will show that a monetary system using an interest rate would suffer from inefficiency, instability, greater risks, lack of systemic integrity, inequity, insignificant role in economic development, and debt sustainability.

SPECULATION AND ARBITRAGE

Speculation means gambling by betting on stock and other financial instruments prices for profit. The gambling tools are a short sale, long purchase, futures, swaps, derivatives, and other Gharar contracts. Such contracts enable speculation on a wide scale. The result is an enormous volume of transactions in the financial market, leading to financialization, which means the financial sector's tremendous growth to become a multiple in size of the real sector. Moreover, speculations have been a culprit in causing instability and contagion.

Therefore, it is understandable to think negatively of speculation and declare it impermissible in Islamic finance. However, how about innocent trading for arbitrage? Arbitrage is to buy at a low price and sell at a higher price. It brings in capital appreciation and helps the market mechanism bring prices close to equilibrium. How can we distinguish between speculation and arbitrage? Islamic economic analysis would ignore the

use of “intention” as a distinguishing criterion because it cannot be defined or evidenced. There must be another way.

The answer is there is no way! But how we deal with speculation in Islamic finance? Two ways are available. First, Islamic finance prohibits the Gharar contracts mentioned above. It means that considerable scale speculation cannot occur in an Islamic economic system. Second, financing speculation is also banned, based on the ultimate consequence of instability and contagion, as they would be contrary to Maqassad al-Shari'ah. Conventional economists consider financing speculation (using borrowed money) to speculate through trading at the margin and other ways as an act of cheating or Ponzi Scheme (Steve Keen, 2011). Therefore, and based on Maqassad, we prohibit such finance. The (ill-reputed) Islamic finance product called “Shares Murabaha” that finances the acquisition of shares, provided they are sold back in few days, should be considered haram.

Meanwhile, to speculate using one’s money, i.e., to buy then sell after a short time, should be tolerated as the trader, in this case, takes full responsibility and is not using a Gharar contract. The lack of financing for such actions limits its extent. Tolerance here is caused by a lack of a mechanism to distinguish between traders and speculators. Meanwhile, Gharar contracts' prohibition further limits the size of speculation and its harm.

THE NEOCLASSICAL CONCEPT OF ELASTICITY

All forms of monopoly enable sellers to strive to condition the demand for their products so that the quantity demanded response would be smaller than the price change, or what macroeconomists call inelastic demand. An example, if the price of bottled water in your neighborhood convenience store increases above its worth in the larger but farther supermarket by 5 percent, the quantity demanded will decrease by only one percent. The elasticity of demand, in this case, would be equal to:

$$e_d^p = \frac{\text{the percentage change in quantity demanded}}{\text{the percentage change in price}} \dots\dots\dots (9)$$

$$e_d^p = \frac{0.01}{0.05} = 0.2 \dots\dots\dots (10)$$

Applying our example to equation (9), we get a price elasticity of demand equal to 0.2. It means an inelastic demand.

Since the quantity demanded diminishes by a smaller percentage than the price, total revenue will increase. Therefore, the monopolist will find it advantageous to reduce the volume of output and increase the price. Lower output means lower efficiency, i.e., policymakers should force the monopolist to increase output and lower price, the level of aggregate output increases, and so does efficiency. Therefore, there is a rationale for maintaining competition or regulating monopolies of all types to prevent them from reducing output and increasing prices.

Generally, demand elasticity can be equal to unity, greater than or less than one. If the supplier happens to face a demand for a commodity whose elasticity is less than one, it will automatically behave like a monopolist. In this case, it will search for the price that fulfills its multiple goals of revenue, market share, and customer loyalty⁸². If it is possible to differentiate his product by adding unique features, special services, or improving locational advantages, he will do some or all of what is possible.

If the supplier faces a commodity demand whose elasticity is greater than one, he will realize that he must take the prevailing price for granted. In other words, he/she becomes a price-taker. Therefore, he can sell all his/her supplies at the current price. It would not be to his/her advantage to increase the price as he/she will fail to sell any. Reducing the price would not be useful, as all available supplies can be sold at the prevailing price.

Another problem with a monopoly is that selling a commodity at a price higher than the competitive level exploits consumers. It charges them more, forcing them to reduce their consumption. The conclusion is that monopoly reduces efficiency and exploits consumers.

In the case of monopsony, we find that the buyer is capable of purchasing commodities at a price lower than competitors. Suppliers of such commodities would be willing to supply less. Production would be less than efficient, and the monopsonist exploits suppliers.

IS ELASTICITY MEANINGFUL IN SEARCH MODELS?

Elasticity in the neoclassical world refers to the market demand curve. When the firm changes its price, the market moves along the demand

⁸² Notice that the supplier does not maximize net revenue or profit, as usually stressed in conventional economics. The supplier would balance the potential increase in revenue with the change in market share and customers' loyalty. It is not a case in profit maximization, but it is a case of goals satisficing.

curve upward or downward. In a price-search world, individual demand curves can be captured instantly or every so short time-period. Due to increasing information over time, demand curves will become more price-elastic. In this world, suppliers with a niche based on location and other types of product differentiation have a much more limited ability to influence the price elasticity of the demand curve

The supplier finds its price range narrowing as time goes by. Consequently, its price margin over cost could become narrower. Reducing its price would be the only alternative to attract more potential price-searching buyers. Its ability to do more promotion through advertisements, sales, and others would become more limited as its margin over cost narrows. The only way available to the supplier to attract more potential customers is to reduce the price. Otherwise, it would have to make itself more entrenched in its location and stick to its product differentiation to keep its niche.

In this world, the neoclassical perception of changing the nature of the market demand curve hardly exists to start with becomes a fanciful idea. The concept of elasticity itself with outward moving demand curves as more price-searching would require more complicated calculation. First, the elasticity calculation has to be done between two points on the demand curve. When the search period is short, we may have to calculate it using two points, one on each timed demand curve. Since we do not have a market demand curve because of the emergent phenomenon, we might have to calculate the aggregate elasticity measure as a weighted average for all individuals in the niche market.

I. THE ROLE OF GOVERNMENT & MARKET STRUCTURE

It is important to note that governments can effectively reduce competition in the market by placing legal entry barriers. Usually, businesses exchange favors with politicians in return for enjoying more market power. The question of stimulating or reducing competition becomes associated with government power to regulate. In restricting competition, governments quite often ignore the issue of efficiency in favor of other objects. While market restrictions by governments usually serve the interest of those who govern, they are conveniently justified by different reasons. Sometimes a market entry is restricted under the guise of protecting jobs, national interest, and even national security.

One way to become a monopolist is to collide with government authorities to block other producers' market entry. For example, the US government allows the production of shale crude oil by local producers even though crude oil from the Middle East and other third-world countries is much cheaper. It is a common example among countries that prefer local production within a limited price margin. Another way is to levy import tariffs on foreign products to reduce their competition against local products.

The collusion of suppliers with their governments is not done for free. It is often a reciprocal act. In Western democracies, business interests maintain or strengthen their monopoly power through the financial support of election campaigns of politicians who are willing to support legislation that favors business or oppose the removal of such legislation. It transforms democracies from the government by the people for the people to government by interest groups for interest groups. Influential political parties would block any attempts to reform election-campaign financing, as they would benefit from collusion with business interests.

In totalitarian regimes, an election may not exist at all, or it exists, but it either has no influence or can be rigged in favor of a political group. The ruling group would often be composed of military leaders and pro-totalitarian groups. In this case, business interests are not supported by campaign financing but take other illicit forms of bribery and graft.

II. TRADING RULES

Islamic economics pays attention to a market order, based on the Shari'ah prohibition of Reba, Ghabn, and Gharar, as each by itself could render a transaction void. Shari'ah also prohibits Ihtikar, which is interpreted here as a monopoly or monopsony.

Trading rules have a few sides. First, we must distinguish between permissible and impermissible transactions. Second, allowing some kinds of transactions and prohibiting some others has implications to the effectiveness of the market mechanism, the macroeconomic stability, the speeds of adjustments in commodity markets, and the nature of the transmission mechanism between changes in the money supply on the one hand and the ultimate changes in macroeconomic variables. These issues will be handled in detail when the classification of transactions is taken up in later chapters.

BETWEEN FREE & CONTROLLED MARKETS

Economists deal with market structures with an eye on gains from trade, specialization, and economic efficiency. The received doctrine influenced policymakers in several respects. First, it encouraged a keen interest in promoting free competition. Second, it has motivated governments to regulate monopolies. Third, knowing that markets will stress efficiency more than equity, other redistribution policies have been widely adopted.

Still, the market structure issues have not all been resolved to the satisfaction of theoreticians and policymakers. Many areas are always in need of further light. Further developments in several directions have kept and will continue to keep market theories alive.

Modern theoreticians in Islamic economics think that an Islamic economic system values competitive markets and their advantages. It is noteworthy that the competition's inclination is not an attempt to implement the neoclassical ideas of perfect or free competition. As we have shown above, such ideas are unrealistic and non-implementable. It is the open access to markets that we strive to establish on the one hand. On the other hand, we would like to make sure that such blockage is justifiable when such access is blocked, based on public interests.

Due to the long period of totalitarian economics passed over many Muslim countries, several apologies for market control have arisen from religious scholars and economists. We interpret this as a desire to justify the actions of our rulers. Therefore, a new revolution is needed, based on a fresh rereading of Fiqh and Islamic traditions, and armed with modern tools of economic analysis. The rule must be open access to economic activities. In case we have exceptions, they must be justified. Such justification should not be saying that rulers have the right to act in the public interest but should be based on whether there is a public interest to be guarded or not.

DOES FIQH PRESCRIBE A MARKET STRUCTURE?

A list of quotations taken verbatim from Fiqh books gives the following ideas regarding Islam's market structure.

First, we find the word "*Ihtikar*," which appears in the first instance to mean the sole seller of some goods and services. In this regard, Fiqh scholars agree that exclusive sellers and buyers would deserve punishment both in this life and hereafter. It raises a few issues. The first issue is

the meaning of the word *Ihtikar*. The word has been taken to indicate two actions: (1) storing goods and (2) selling them at a later date, presumably when prices are higher. Therefore, if goods are stored for future use, e.g., food stocks, this is not *Ihtikar*. In this context, Fiqh scholars have focused on the meaning of speculation, or holding goods in the hope of future higher prices, while leaving aside the critical implication of exclusivity.

When sellers and buyers are many in a large market, we can expect some sellers to hold back some of their inventories for future sales. We can even find that most sellers would keep some of their possessions in inventory while selling the rest. The proportion of goods offered for immediate sale to that kept for future sale depends on price expectations and time preference. However, it mostly depends on establishing a continuity of supply fed from sources of production and wholesale trade. It is a requirement of business management. Such action would not harm the market's competitive mode, as current prices will always adjust to price expectations to convince suppliers to offer a sufficient amount of their wares to meet current demand.

The critical aspect of the prohibition of *Ihtikar* in Islam is that some would become exclusive producers or holder (seller) of certain goods. It would deprive the market of competitive, fair play and allow sellers to exploit buyers by appropriating their consumers' surplus through monopolistic tactics.

An interesting juncture in this regard was when Fiqh scholars asked what goods should not be subject to *Ihtikar*. They mentioned any goods needed by people and whose withholding would cause harm. In particular, food, cotton, and linen textiles are mentioned in such a context. It is interesting to note that all goods that are lawful to consume or used for producing lawful goods are considered needed by economists as long as they are willing to pay for them. In other words, the general view of Fuqaha' that the prohibition of *Ihtikar* is not limited to foodstuff only is parallel to the consensus of economists that monopoly is harmful regardless of the particular market in which it is practiced.

There are two criteria offered by Fiqh scholars regarding the prohibition of *Ihtikar*: the first is that there is a demand for the good withheld, and the second is the lack of substitutes for it. Both criteria are equivalent to the existence of an inelastic demand curve for the goods withheld.

Ironically, this is the case where a monopoly in the economic sense is most likely to be found.

As in most cases, Fiqh scholars give disparate opinions regarding the *prohibition's scope*. In particular, the Malikis and Abu Yusuf from the Hanafi School extend the scope of the prohibition to all goods. In contrast, the Hanafis, Hanbalis, and Shafi's limit the scope of the prohibition to foodstuff. Furthermore, Muhammad Ibn Al-Hassan views that such prohibition includes foodstuff and clothes. The second opinion that extends the scope of the prohibition to all goods whose withholding would be harmful to the public, while running against the majority, seems to be more credible. It relies on several *hadiths* that decree such generality and see that the specific mention of foodstuff in other *hadiths* is just to give an example. In Fiqh methodology, when general and detailed statements are found concerning a particular question, the public statements would take precedence over the specific. Such rule gives extra credence to the Malikis and Abu Yusuf over the Hanafi School's opinion.

Another interesting aspect of Fiqh scholars' analysis of the subject of *Ihtikar* is that on the one hand, they limit its meaning to the mere purchase of a good from a certain market and withholding it for a period to raise its price in the same market. On the other hand, they place in the same category what they call labor *Ihtikar*, or what modern economics is known as a monopoly in services. Specifically, they prohibit the collusion among the suppliers of services, like real estate surveyors, lest they raise their prices. Here we can see a complete equivalence between *Ihtikar* and monopoly.

Besides, the Fiqh scholars prohibited a form that we can call in modern economics monopsony, or having the exclusive right to purchase certain goods, especially when it is to hold the exclusive right to sell the same commodities. It fact gives a credible reason to consider the topic of *Ihtikar* in Fiqh to be equivalent to the topic of monopoly in economics.

The arguments in Fiqh against fixing prices by the government add an interesting dimension to the above. It is generally agreed that such action by the government is generally unlawful. Only in the exceptional circumstances when public interest is at stake, such action would be allowed. The rationale behind the unlawfulness of price-fixing is worthy of further thinking. Exchange in Islam is considered to be a voluntary contract in

which two parties agree on their volition to buy and sell. Pricing by government decree violates the voluntary aspect of the exchange contract.

We must first stop to ask whether the insistence on voluntary exchange contracts has any economically significant elements. The voluntary side can be interpreted as the freedom to access the market. When the government practices price-fixing, it automatically excludes many agents from the process of exchange. Voluntariness is, therefore, an element of competition. Such an element affects the number of agents willingly participating in the market and thereby affects competition. Voluntariness is, therefore, a necessary condition for the existence of competition.

Therefore, the general rule of prohibiting government price control can be safely interpreted as a rule to protect competition in the market. It must be added to the other rule of prohibiting *Ihtikar* or monopoly as policy tools available to the government to institute competitive markets in an Islamic economic system.

Barring wars and natural disasters, when commodity rationing becomes necessary, the government can force the monopolist to set his price equal to its marginal cost.

Therefore, we can conclude that the government is given the right to fix prices only as an anti-monopolistic policy. Sometimes monopoly is inevitable, as in the case of natural monopolies. In such a case, the option of fixing the price by the government becomes a viable alternative to protect competition. Furthermore, when the government sets prices, it must consider the cost of sellers. Consideration of the cost is taken here as a measure of justice to assure continued supply.

We can add to the above reasoning that *Fiqh* scholars have prohibited the collusion among buyers and sellers. Undoubtedly, such collusion is a form of monopsony and monopoly.

One last interesting aspect of the *Fiqh* discussion of market structure is the prohibition of exchange outside the market place. It is unlawful to intercept suppliers of goods while carrying their wares before they reach market premises. We can understand that such suppliers were predominantly small farmers and merchants who bring their wares to the market place for selling. Their interception before they reach the market would have two effects. First, because they are uninformed about market conditions, they could sell at prices, which would appear unacceptable once they reach the market place. Voluntariness would therefore appear to be in-

complete. Second, their failure to reach the market place would reduce the number of agents therein and affect the quality of competition, especially in a small community.

Again, we find that this is another rule that strengthens market competition.

We can finally conclude that Islamic teachings point to the necessity to keep open access to the market for both buyers and sellers. The market structure would have open access as a rule.

RISK-SHARING, MARKETS & SPECIALIZATION

Another area that requires further thinking is how risk-sharing influences market structure. Both conventional and Islamic economic literature is still groping on this subject. It is known that the Islamic economic system, properly applied, provides a higher degree of risk-sharing than does a conventional economic system. Such risk-sharing would be manifested in both the relationship between fund suppliers and fund users from one side and banks and financial institutions from the other side.

In this section, we want to show that risk-sharing would also be manifested by greater specialization within each economy and greater integration of markets among countries using risk-sharing, i.e., seriously applying proper Islamic finance.

In a financial system based on Islamic finance, economic agents have the following options for fund placement:

- Opening investment account, based on Mudaraba
- Purchase of stocks, Sukuk, investment certificates, and other financial assets (portfolio investment).
- Opening business ventures and obtaining finance by issuing stock and financial instruments and obtaining finance from banks and financial institutions

The above activities result in financial flows among individuals and institutions of the following kinds.

1. Between business and household consumers
 - 1.1. commodities balanced by
 - 1.1.1. Cash payments or
 - 1.1.2. debt instruments (IOUs)
 - 1.2. input (labor, monetary and physical capital, management) services balanced by
 - 1.2.1. cash payments: wages, salaries, profits, rental payments

- 1.3. Entitlements to management and profits balanced by
 - 1.3.1. Cash
2. Among households
 - 2.1. Commodities, real and financial assets balanced by
 - 2.1.1. Cash payments and
 - 2.1.2. IOU's
3. Between households and IBFI
 - 3.1. Common shares in Mudaraba assets balanced by cash payments
 - 3.2. Commodities, real and financial assets, balanced by
 - 3.2.1. cash payments or
 - 3.2.2. IOU's
4. Between household and business on the one hand and financial markets on the other hand:
 - 4.1. Cash
 - 4.2. Financial assets

Commodity and other flows indicated above can be summarized as:

1. Commodities, real and financial assets, and factor inputs
2. Cash, non-negotiable debt,
3. Entitlements to management and profits,

Financial assets in Islamic finance are titles to a combination of physical assets, nominal assets (cash and nonnegotiable debt) resulting from Islamic finance. It means that households and IBFI's get involved in business through the supply of capital and management. The absence of purely nominal assets resulting from interest-based lending and gambling activities in financial markets has serious macroeconomic implications. Those specialized in speculative trading in the financial market will have to find occupations in the real sector. The percentage of the population involved in specialization increases. Specialization becomes more intense. The result is higher efficiency due to a greater intensity of specialization.

Therefore, when Islamic finance is properly applied to replace conventional finance, economic interrelations between households, businesses, and IBFI's will not include speculative activities. Those specialized in such activities will switch to specialization in producing goods and services both in the commodity and financial sectors. In other words, all populations would be specialized in producing some commodity (good or service) in the fields of production, finance, and trade. In other words,

risk-sharing introduced by Islamic finance increases specialization's intensity, which would lead to higher efficiency.

To understand the effects of risk-sharing on countries' specialization, let us compare two groups of countries. Group A uses Islamic finance, properly applied, while group B uses conventional finance. International capital flows in group A would be in the form of direct foreign investment and portfolio investment in stocks, Sukuk, fund shares, and Islamic REITs⁸³. Each country's citizens would supply or receive funds either in equity or sale finance. In group B, capital flows take place in the form of debt. In the case of group A, each country's citizens are directly involved in the other countries' economic activities, including buying, selling, producing, and distributing all at once. The barriers between markets in all countries must be kept low to facilitate capital and commodity flows. In other words, there would be economic incentives and political pressures to lower economic barriers among the members of group A. Risk sharing, therefore, creates dynamics towards regional specialization and integration.

In group B, citizens of each country provide the others with debt financing and portfolio (not direct investment) without being involved in the production process or trade in other countries. In return, they would receive cash flows against debt service and dividend payments. Such movements would require only free capital movements (not including commodity and labor movements). There would be no economic benefits and political pressures to remove trade barriers. Markets would then remain disconnected. In other words, the lack of risk-sharing eliminates any justification for market integration.

It is the basis for our theory of Islamic economic integration.

TESTS OF RISK-SHARING & INTEGRATION IN REALITY

Now we need to test whether risk sharing in itself renders economic benefits through a higher degree of integration between capital markets. Presumably, more integration leads to more specialization, which translates into higher efficiency.

⁸³ An Islamic REIT is a financial asset that invests in real estate through Ijarah contracts (both operating and Ijarah Muntahia Bettamleek) that can be traded in financial markets like a stock or a Sakk (singular of Sukuk). It provides a way to invest in real estate with a high degree of liquidity. More is explained in the chapter on securitization.

Therefore, it would be an interesting proposition to test whether the relative predominance of risk-sharing in an economy or between economies increases efficiency. One way to do so is to test the relationship between risk-sharing and overall macroeconomic efficiency. Another way is to see whether financial market integration between Muslim countries improves market structure, in the sense of more specialization in individual economies.

Unfortunately, testing for the first hypotheses in Islamic countries where Islamic finance is practiced may not be easy. In such countries, Islamic finance is not properly practiced to a large extent. It rather mimics conventional finance, depriving it of plenty of macroeconomic benefits. The details of this would be explained in the later chapters.

On the one hand, Islamic banking practices are marred by two defects. First, depositors do not completely share risk with Islamic banks and financial institutions, as Islamic banks usually allow withdrawal before maturity, implying a guarantee of principle hence. Second, most of the funds provided by Islamic banks and financial institutions are not in PLS finance, as debt finance dominates by far. Furthermore, credit is provided through fictitious sale contracts, designed to avoid actual handling of commodities.

Testing for the second hypothesis regarding financial market integration would be equally difficult, as it is generally known that there is little integration among Muslim countries.

We can look into the literature for another parallel but not entirely similar experiment where the relationship between risk sharing and efficiency can be tested. On the one hand, it isn't easy in a debt-based market economy to test the relationship between risk-sharing and efficiency. Second, an empirical measure of efficiency would be hard to get at the macro level. Despite that, Kalemli-Ozcan, Sorensen, and Yosha (1999) have developed an interesting scheme to fulfill the same purpose.

They considered the integration of capital markets across certain regions to indicate risk-sharing within such regions for measuring risk sharing. To measure efficiency, they composed an index of specialization in production. They estimated it for each member of the European Community- and non-Community members of the OECD and the United States, Canadian provinces, Japanese prefectures, Latin American Countries and regions of Italy and Spain, and the UK. Then they estimated the

degree of capital market integration in the same geographic units as a measure of risk-sharing.

They found a positive and significant relationship between the degree of specialization of individual members of a group of countries, provinces, states, prefectures, and the amount of risk shared within the group. They performed regressions using variables such as shareholder rights and the financial sector's size (relative to GDP) as instruments for inter-regional risk sharing. The regressions confirmed that risk-sharing *facilitated by a favorable legal environment and a developed financial system* was a direct causal determinant of industrial specialization.

We understand that specialization is one of the results of competitive markets. Taking the above results into consideration, we find that risk-sharing furthers specialization, thereby raising the efficiency of the economy as a whole. In Islamic economic systems, risk-sharing goes beyond the capital market's mere integration. It should be more prevalent through the financial market structure, producing more specialization and greater overall efficiency.

CHAPTER XIV: TRANSACTIONS IN ISLAMIC & CONVENTIONAL SYSTEMS

Islamic finance has different angles. Most importantly, it excludes the sale of present for future money at a premium. It is based on a multitude of contracts, which can be mixed and matched to form a larger number of finance products. In contrast, conventional finance is based on only one contract, viz, the classical loan contract. In a world of Islamic finance, the use of Islamic finance contracts produces certain types of transactions, all connected with either producing or trading commodities. In a conventional finance world, transactions can be limited to the mere exchange of money and monetary assets. At the same time, they also can be extended to encompass the production and exchange of commodities.

The chapter looks into the types of transactions in Islamic and conventional economies. It draws results from its analysis that appear counterintuitive at first sight. Suppose you asked an economist trained in the neo-classical school a simple question about excluding certain transactions by making them unavailable to market traders. The economist would not hesitate to point out that this would be a good idea, no matter what transactions you exclude, as you would have limited the scope of choice to traders. Therefore, they would not reach their ultimate satisfaction. Thus, economic intuition indicates that the broader the range of choice, the better for individual traders and the whole economy.

It chapter attempts to show that such intuition does not stand against closer inspection. Once we start to classify all transactions into different types and consider each type's economic effects, we arrive at different conclusions. Certain types of transactions support and facilitate the market mechanism. Other types hinder it. The analysis in this chapter falls into Islamic economic analysis properly. It can also compare an Islamic economy and a conventional economy.

One of the important criteria that can distinguish an Islamic economic system from conventional systems is how transactions in each economy differ. Transactions can be divided into three types (Al-Jarhi, 2002): real, semi-real, and nominal transactions. Real transactions are those in which money (spot or deferred) is traded against real commodities (deferred or spot). Nominal transactions are those in which money (spot or deferred)

is traded against money (deferred or spot). In both cases, a premium must be paid to the party that provides spot money as a counter value by the party that offers money payable in the future. Semi-real transactions are the ones that involve the trading currency of a country against the currency of another country, both in spot value without any deferment. Deferred trading of currencies (one or both) are considered nominal transactions. In other words, nominal transactions include all debt and pure risk trading. Debt here is deferred money in any form, including IOUs.

When present money is traded against an IOU or debt, it is debt trading⁸⁴. Current money can also be exchanged against a gambling payoff, regarding a future uncertain event, like changes in prices, interest rates, rates of return, or other future types of events, like winning a lottery or a football game and the like. It is also a nominal transaction. Interestingly enough, both debt and risk trade transactions are prohibited in Islamic finance. In contrast, all three types of transactions are allowed in a conventional system.

In an Islamic economy, only real and semi-real transactions are allowed (Al-Jarhi, 2002). Nominal transactions are strictly prohibited. Moreover, sandwiching a nominal transaction between two real transactions would turn it into a nominal transaction. For example, if someone bought a commodity for deferred payment and sold it back to its seller ('Eina), or a third party (Tawarruq) for spot payment, the ultimate consequence is a sale of present for future money. The two sale contracts used as a sandwich are only a camouflage to hide the ultimate consequence.

Nominal transactions occur in cases of debt- and risk-trading. When present money is traded against an IOU or debt, it is debt trading. When present money is traded against the results of a gamble regarding future prices, inter-

⁸⁴ Lending money in an Islamic economy is a philanthropic act, through which someone provides *temporary* liquidity to one who is temporarily short of liquidity and who presumably wishes to fulfill some basic needs. In such cases, loans are forwarded interest-free, or Qard Hassan. Obviously, such activity would occur only on a limited scale and within special circles, e.g., relatives, friends, and neighbors, in whose cases creditworthiness can easily be ascertained and debt collection can be done at low costs. The author has pointed out elsewhere that interest-free lending could take place on a large scale with proper institutional arrangements (Al Jarhi, 1983). Debt resulting from CP can be exchanged for cash and monetary assets only at face value. It can be swapped against real commodities and assets. It is tantamount to saying that debt has rather limited appeal. It would represent an implicit restraint on credit finance.

est rates, or other the occurrence of a future event, this is also a nominal transaction. Besides, trading in foreign exchange, where one or both counter values are deferred is not allowed, as it is a nominal transaction.

Conventional economies allow interest-based borrowing to finance some current purchases. In contrast, the Islamic economy disallows interest-based lending and operates based on universal banking that mixes commerce and investment with commercial banking. To finance current purchases, it provides customers with credit purchase, CP, which entails that the bank buys the commodities and assets from suppliers and resells them on credit to customers satisfying creditworthiness conditions similar to those that conventional banks require for borrowers.

The chapter uses simple calculations to compare transaction costs in both economies. It argues that credit purchase arrangements incur lower transaction costs under open-market access than borrow-and-purchase arrangements in the conventional economy. The most important implication is that a policy that lifts entry barriers imposed against Islamic banking and allows banks to combine commerce with banking activities contributes to social welfare.

REAL TRANSACTIONS

Real transactions are defined as the purchase of real commodities and assets against spot or future cash payments.

I. SPOT PURCHASES OF COMMODITIES AND ASSETS

A. DEFINITIONS

We assume a set of real commodities, $Y = \{y_i\}$, where y_i is the quantity of the i^{th} commodity, prices $P^Y = \{p_i^y\}$, where p_i is the price of the i^{th} commodity, and transactions costs $V^Y = \{v_i^y\}$, where v_i^y is the transactions cost of trading the i^{th} commodity, $i = 1, 2, 3, \dots, n$.

Our world has real and financial assets: which are all titles to real or financial assets⁸⁵, $A = \{a_j\}$, where a_j is the quantity of the j^{th} asset, with prices, $P^A = \{p_j^a\}$, where p_j^a is the price of the j^{th} asset, current rates of return $\Gamma = \{\gamma_j\}$ and expected rates of return ${}^E\Gamma = \{e\gamma_j\}$ on real and financial assets, where γ_j is the rate of return on the j^{th} asset,

⁸⁵ Financial assets are also titles to real assets, like shares, investment certificates, fund shares and Sukuk.

transactions costs $V^A = \{v_j^a\}$ where v_j^a is the transactions costs of trading the j^{th} asset, $j=1, 2, 3, \dots, m$.

B. IDENTIFYING TRANSACTIONS AND THEIR COSTS

Traders can exchange money directly for commodities and assets. Such transactions can be termed *real transactions, type I*. Their total value is a function of the value of total output (the available flow of commodities (goods and services), $PY = \{p_i y_i\}$, as well as transactions costs. Transactions costs are the costs associated with concluding trade deals. They include time, expertise, and information used in negotiations, commissions, bid-ask spreads, impact fees associated with carrying out large transactions on the market, and administrative costs (which include the costs of confirming, documenting, reconciling, and clearing trades).

A priori, the conduct of any transaction will cost some resources. The cost per transaction in the i^{th} commodity is defined as v_i^y and in the j^{th} asset as v_j^a .

The total cost of real spot transactions can be defined as the sum of spot transactions in goods and services plus the cost of spot transactions in assets. $V = V^Y + V^A$

It, in turn, can be written as:

$$V = \sum_{i=1}^n v_i^y + \sum_{j=1}^m v_j^a \dots\dots\dots (11)$$

Where n is the number of commodities (goods and services), and m is the number of assets.

The value of total transactions of type I would be equal to the value of spot transactions in commodities T^Y plus the value of spot transactions in assets T^A , i.e.,

$$T_A = T^Y + T^A \dots\dots\dots (12)$$

The value of transactions in the i^{th} commodity is equal to its price multiplied by its quantity. The value of transactions in the j^{th} real asset is equal to its price multiplied by its quantity. the total value of spot transactions in both commodities and assets amounts to:

$$T_Y = \sum_{i=1}^n p_i^y y_i + \sum_{j=1}^m p_j^a a_j \dots\dots\dots (13)$$

Similarly, the total value of spot transactions in commodities can be expressed as a function of commodity current prices $P^Y = \{p_i^y\}$, their ex-

pected prices ${}^E P^Y = \{ {}^e p_i^Y \}$, total income P^Y as well as the total transactions costs of trading commodities V^Y .

$$T^Y = T^Y \{ P^Y, {}^E P^Y, P^Y, V^Y \} \dots\dots\dots(14)$$

Similarly, the total value of transactions in assets T^A can be expressed as a function of current asset prices P^A , their expected prices ${}^E P^A$ their current rates of return $\Gamma = \{ \gamma_j \}$, their expected rates of return ${}^E \Gamma = \{ {}^e \gamma_j \}$, total income P^Y and total transactions costs of trading assets V^A .

$$T^A = T^A \{ P^A, {}^E P^A, \Gamma, {}^E \Gamma, P^Y, V^A \} \dots\dots\dots(15)$$

Therefore, we can write the total value of spot real transactions type I (in both commodities and assets) as a function of current and expected commodity and asset prices, current and expected rates of return on assets, and transactions costs.

$$T = T \{ P^Y, P^A, {}^E P^Y, P^A, {}^E P^Y, \Gamma, {}^E \Gamma, V \} \dots\dots\dots(16)$$

An increase in the flow of goods and services would lead to a greater volume of this type of transactions. Lower prices imply higher quantities demanded and more purchases, while higher prices would mean greater interest in concluding price search and cutting deals with suppliers, and consequently more sales. In both cases, changes in prices, whether up or down, would lead to more transactions. Similarly, changes in asset rates of return would lead to more transactions. Higher return rates would lead to greater demand for assets and more transactions; lower rates of return would mean trading assets with a greater return decline for assets with less return decline, leading to more transactions. Furthermore, higher transactions costs imply a smaller volume of transactions.

II. PURCHASE OF COMMODITIES AND ASSETS ON CREDIT

In all transactions, it is possible to defer either side of the deal to a specified future date: the payment of the price or the delivery of commodities. The postponement of payment is associated with buying on credit. The postponement of delivery of goods, services, and real assets against spot payment would be equivalent to purchasing a tangible asset with a commitment to their future delivery. It has been dealt with in the above category.

Let us consider credit purchase in properly applied Islamic finance (without fishing on Sunday) under the assumptions of costly information. Those buying on credit against deferred payments negotiate markups with Islamic banks. Islamic banks, working in an open-access environment, would find it inevitable to negotiate. Open-access finance, therefore, allows finance users to shop around for better credit terms. We assume that both finance seekers and Islamic banks are price searchers. We also assume that Islamic banks are not allowed to use a benchmark, e.g., LIBOR. Markups become subject to negotiations. For a customer, an acceptable markup for a particular economy depends on his/her rate of time preference. It also depends on his/her the perceived value in use of the commodity to be financed. The higher the rate of time preference or the perceived value in use, the higher the acceptable markup. As a finance provider, the markup offered by the bank would depend on the available resources and the competing uses in addition to the market conditions. The interactions associated with price-search behavior results in some narrow range of markups for each Islamic bank for each commodity financed through credit purchase.

A. DEFINITIONS

${}^aV^Y = \{ {}^a v_i^y \}$: transactions costs of purchasing commodities, by obtaining credit from suppliers, i.e., through credit purchase, CP,

$({}^aV^Y)^B = \{ ({}^a v_i^y)^b \}$: transactions costs of purchasing commodities on credit through banks; banks buy commodities for cash from suppliers and resell them to customers on credit with a markup,

$\mu_j^y = \frac{({}^a p_j^y - p_j^y)}{p_j^y}$: financing markup on commodity credit purchase from banks,

$\mu_j^a = \frac{({}^a p_j^a - p_j^a)}{p_j^a}$: financing markup on asset credit purchase from banks,

aT_y : total credit-purchase transactions

${}^aP^Y$: credit-purchase commodity prices,

${}^aP^Y$: credit-purchase prices; excluding financial assets

U^Y : financing markups on commodities,

U^A : financing markups on assets; excluding financial assets,

aV : transactions costs of credit-purchase of commodities and assets from suppliers; excluding financial assets,

aV^b : transactions costs of credit-purchase of commodities and assets through banks; excluding financial assets,

aV^c : transactions costs of credit purchase of commodities,

aV^A : transitions costs of credit purchase of assets; excluding financial assets,

$\Gamma = \{\gamma_j\}$: the current rates of return on real and financial assets,

${}^E\Gamma = \{{}^e\gamma_j\}$: the expected rates of return on real and financial assets.

III. COMBINING COMMERCE WITH BANKING

Credit finance can be offered either directly by suppliers or indirectly through banks. Suppliers would offer their customers opportunities to purchase on credit, provided they fulfill certain criteria regarding their creditworthiness. However, such an arrangement would be limited by finance available to suppliers. Suppliers in conventional economies would make a standing arrangement with banks to lend customers to cover their purchases. Meanwhile, no bank would be interested in channeling all its resources to one supplier. It would be of interest to deal with all possible supplies to obtain quantity discounts and provide more services to customers.

On the other hand, in an Islamic banking environment, the same suppliers would have an incentive to offer banks standing arrangements to buy their commodities and assets for cash, most surely at a discount⁸⁶. The sale contracts between suppliers and banks would carry less transactions costs than the corresponding multiplicity of contracts concluded between suppliers directly with ordinary customers. Banks would be making repetitive purchases in all cases, presumably to satisfy customers' demands. Repetition would induce banks to make standing arrangements with suppliers to reduce transaction costs.

Besides, banks as information specialists can ascertain individuals' creditworthiness more cheaply than suppliers can. Extensive price-searching behavior on the side of banks is balanced with their ability to sell the information they collect to customers for a small margin in each transac-

⁸⁶ Suppliers can offer banks facilities to provide customers with loans to finance their purchases. However, such transactions would revert to lending then purchasing.

tion. Such internalization of search efforts encourages banks to do more search and, consequently, offer customers attractive deals through credit purchases. Some Islamic banks have been found to open showrooms where merchandise is presented to customers under the option of purchasing on cash or deferred payments. Meanwhile, suppliers would not feel threatened by banks' trading, as the latter operates as outlets to suppliers.

Banks can also take advantage of quantity discounts when buying in bulk, using standing arrangements in place of repetitive contracting. It would enable banks to reduce their transactions costs of buying and then selling on credit, below that of purchasing on credit directly from suppliers⁸⁷. Besides, barring barriers to entry, distributors would also compete with banks to buy in bulk and sell to the public at a discount. Therefore, banks would be forced through competition to reduce their transactions costs further. Banks ultimately have an edge in collecting information about customers, standardizing contracts, and conducting procedures for collateral. Suppliers are not information specialists. In our world of costly information, such specialization pays lower transaction costs.

Accordingly, we can claim that banks' credit purchase transactions should generally be less than that through suppliers. However, the former involves two contracts, and the latter involves one. The former would ultimately dominate the latter in an Islamic banking environment⁸⁸. It should be an answer to why Murabaha is used, allegedly similar to conventional finance.

The above logic implies that the transactions costs of credit purchase, CP, directly from suppliers $d_{v_i}^y$ should be higher than that of the corresponding purchases from banks $(d_{v_i}^y)^b$, i.e.,

$$d_{v_i}^y > (d_{v_i}^y)^b \dots\dots\dots (17)$$

⁸⁷ There are other advantages of combining banking and commerce (Haubrich and Santos, 1999).

⁸⁸ Therefore, as will be seen later, we can venture to say that it would be more efficient in a conventional banking environment to allow banks to directly finance credit purchases. However, conventional banks would be constrained by the (administered) interest rates as well as the rules of conventional finance. at the end, they would not be able to offer attractive deals for credit purchase.

IV. TRANSACTIONS COSTS OF CREDIT PURCHASE

When people buy on credit, they would be receiving their purchases while providing monetary assets (promises to pay fixed sums of money at certain future times) in return. In contrast, when payment is made spot, and the delivery of the sold commodity or an asset is deferred, sellers would provide a real asset, a pledge to deliver some real or financial asset.

Providers of commodities and real assets on credit will require a premium or a *markup* over their spot prices⁸⁹. It will depend on the demand for purchase and supply for sale of the same commodity or asset on credit and the repayment schedule. Presumably, markups would also be different for different commodities, as people would have a different time preference for different commodities. In other words, commodities do not have the same degree of urgency for their use⁹⁰. The total value of such transactions ${}^d T$ is equal to the sum of transactions of credit purchase

of both commodities ${}^d T^Y$ and of assets, ${}^d T^A$, excluding financial assets. It is essential to keep in mind that financial assets should not be sold on credit. Its proposed prohibition is based on its ultimate consequence of financing a large volume of speculations, leading to instability and contagion⁹¹. Such a consequence is contrary to Maqassad Al-Shari'ah. Both components depend on income, commodity, and asset CP prices, ${}^d P^Y = \{ {}^d P_j^Y \}$ respectively, markups on commodities and assets

$$U^Y + U^A = \sum_{i=1}^n u_i^Y + \sum_{m=1}^{j=1} u_m^A, \dots\dots\dots (18)$$

as well as transactions costs,

⁸⁹ The commonly known justifications for that premium include time preference and alternative uses of the sold commodities and assets in the production process. The markup on the spot price of each good and service, $\mu_j^Y = \frac{({}^d P_j^Y - P_j^Y)}{P_j^Y}$ and each asset, $\mu_j^A = \frac{({}^d P_j^A - P_j^A)}{P_j^A}$, is equal to the difference between the credit-purchase price and the cash price of each, divided by the latter price.

⁹⁰ It is also possible that markups on the credit sale of any particular commodity would be different for different buyers, depending on the risk element associated with each. It is intuitively acceptable that different people would have different time preference for each commodity. Even the same individual would have different rates of time preference for different commodities

⁹¹ Purchase of financial assets on credit can be used as a Ponzi scheme to cover destabilizing speculations in financial markets (Keen, 2011). In addition, it can be used to camouflage pure-risk trading.

$$dV = dV^Y + dV^A \dots\dots\dots (19)$$

Naturally, we can expect transactions costs for the same commodity to be higher for credit than spot transactions, i.e.,

$$dv_j > v_j \dots\dots\dots(20)$$

We can call this type of transactions *real transactions type II*. Their total value would be defined as:

$$dT = dT^Y + dT^A = \sum_{i=1}^n dP_i^Y y_i + \sum_{m=1}^j dP_j^A a_j \dots\dots\dots (21)$$

Therefore, total real transactions type II can be determined through the following function, which is similar to (11) above.

$$dT = dT (Y, EP^Y, EP^A, P^Y, P^A, U^Y, U^A, \Gamma, E\Gamma, dV) \dots\dots\dots (22)$$

Transactions would continue to react in the same manner to income, prices, and transactions costs. Moreover, higher markup leads to a lower level of transactions.

V. REAL TRANSACTIONS AND TOTAL OUTPUT

Our price search model of directed or competitive search postulates a state of *floating disequilibrium*. It is the name of a disequilibrium state in which deals are made sporadically over time. Suppliers offer prices, firms' supply, and households' demand schedules continuously change with time, as new information is discovered. According to location, branding, services, advertising, etc., each commodity's market is fragmented into niches. There exists a different and continuously changing price for each niche. We can draw the following implications:

1. Price expectations in a price-search model like ours have two manifestations. The first is how price-searchers get their information through suppliers' and banks' prices for a credit sale, evaluate each new piece of information they obtain, and whether it points to a higher or a lower price a further search. Once the price searcher, as it searches, confronts rising prices, it would backtrack and purchase at the last lowest price found so far, unless expectations of a higher price would discourage the consumer and force him to withdraw. Backtracking does not guarantee to find the lower prices encountered previously. However, it enables the price searcher to use the lowest available price from his past *information dossier*, rather than the recently discovered higher prices.

2. The general assessment of price trends, mostly found out by suppliers and fewer traders on the demand side searching at a broader spectrum. It would mean that price searchers would discover higher prices with more time spent searching. In other words, prices found today would be higher than prices found a week or a month from today. It would be an incentive for traders to conclude deals at the lowest available prices found so far. It also helps formulate an expectation of higher future prices. The opposite happens when suppliers reduce their prices based on their expectations of future trends.
3. At times of changing price and rate of return expectations, traders would attempt to buy (sell) more of the goods whose prices are expected to rise (fall). Therefore, the volume of transactions would increase, requiring either higher velocity or faster monetary growth. If both velocity and monetary growth stayed the same, the price level would decline. Most probably, and in the absence of monetary policy actions, the market would provide internal mechanisms to increase velocity in the face of higher transactions, as more transactions would mean a higher rate of turnover of money and goods. Therefore, we can claim that velocity would be a function of price expectations and the volume of transactions.
4. Real transactions can be viewed as reactions to changes in demands and supplies of commodities and assets, prompted by price and rate-of-return expectations. They would continuously produce a new set of prices and rates of return that would directly influence output plans. One could envision reaction functions operating between changes in demands and supplies, changes in transactions, changes in price trends, and finally, changes in output plans. There would, therefore, be a relationship between transactions on the one hand and output of goods, services, and assets on the other through those reaction functions. Such a relationship could emanate from two sources.
 - First, as commodities and assets are exchanged, additional values are created. The exchange of goods and services from one individual to another would improve the allocation of resources and produce extra efficiency, which would benefit all traders in different proportions. Extra efficiency can be translated into additional output. It implies that there is a positive relationship between real transactions and output, such that,

$$\frac{\partial Y}{\partial T^Y} > 0$$

- Second, transactions in commodities and assets for which demand has declined (increased) relative to their supplies would be associated with decreasing (increasing) prices, which would influence price trends and send signals to producers enforcing changes in inventories to decrease (increase) output. The greater such transactions volume, the stronger the intensity of such signals, and the faster resources are reallocated from decreasing- to increasing-demand commodities. The faster adjustment would produce efficiency gains in terms of better production plans and fewer inventories. It can also be translated into a higher output⁹² so that.

$$\frac{\partial Y}{\partial T^Y} > 0$$

NOMINAL TRANSACTIONS

Let us define

A set of monetary assets, which is a subset of assets $A^m = \{a_k^m\}$, where $k = 1, \dots, K$. Monetary assets are debt instruments exchanged for spot money, or payments of a gambling payoff, to be declared later. They carry the rates of interest $R = \{r_k^m\}$, where $k = 1, \dots, K$. Each r_k^m . Each interest rate is equal to the rate of interest administered by the monetary authority plus a premium that reflects the borrower's creditworthiness. When the monetary asset is a debt, the rate of interest is explicit. When it is a gambling payoff, the interest rate is implicit in the payoff. In other words, the net payoff would be equal to the gamble payoff minus the implicit interest, based on the current rate accumulated during the payoff period.

The transactions cost of selling a bond or a gambling payoff (sale of a lottery, derivative) associated with r_k^m is equal to t_k^m . Such that the total transactions costs of borrowing and making gambles (selling nominal assets or a gambling payoff) would be $T^K = \sum_{k=1}^K t_k^m$.

⁹² In a growing economy, an increase in transactions would lead to more signals to increase than to decrease output, as the decline in the demand for some commodities and assets would be more than offset by the increase in the demand for others.

VI. SPOT MONEY AGAINST MONETARY ASSETS

The act of selling monetary assets (borrowing) and selling gambling payoffs (a lottery or a derivative) can be viewed as a purchase of spot money against the sale of monetary assets, i.e., promises of future delivery of fixed sums of money. Here we assume that the payment of the monetary asset's current value is done immediately in cash.

Such transactions could be termed *nominal transactions*. Their total value (the number of monetary assets exchanged for present money multiplied by their respective prices) $A^M = \sum_{k=1}^{k-1} p_k^m a_k^m$ is a function of the current and expected rates of interest, current nominal asset prices, P^M , expected nominal asset prices ${}^E P^M$ and their transactions costs.

$$T_M^A = T_M^A (R, {}^E R, P^M, {}^E P^M, V_M^A) \dots\dots\dots (23)$$

As the current rate of interest rises, the amount of borrowing and, consequently, T_M^m (the amount of present money obtained in return for monetary assets) declines. When the expected future rate of interest rises, current borrowing as well as T_M^m increases, and *vice versa*. As the current prices of bonds or gambles rise, the amount of borrowing (selling bonds) and gambling (selling lotteries) increases. As the expected prices of bonds or gambles fall, the amount of lending and gambling rises.

COMPARING CREDIT PURCHASE WITH BORROW-THEN-PURCHASE

Each borrow-then-purchase, BTP, transaction involves two transactions; one with the bank to borrow and another with the supplier to purchase the commodity. In contrast, using credit purchase, CP involves only one transaction. CP transactions costs would be equal to ${}^d v_i^y$. A credit purchaser would pay a markup over the spot price equal to u_i percent, his total cost of making the exchange, over and above the current purchase value; the total is equal to

$${}^d v_i^y + u_i (p_i y_i) \dots\dots\dots (24)$$

To the whole society, the transactions costs of that exchange are equal to ${}^d v_i^y + {}^b v_y$. The first term refers to the cost of the CP contract. The second refers to the cost of acquiring the commodity by the bank from its supplier. Alternatively, he can borrow through selling a nominal asset (a debt instrument), incurring transactions costs equal to v_k . Then borrower-then-purchaser uses the proceeds to make a real transaction to pur-

chase the desired commodity for cash, incurring transactions costs equal to v_i^y . The total cost, over and above the purchase value for that exchange, is equal to $(v_k + ra_k) + v_i^y$

We turn now to compare the transactions costs of a CP contract, $^d v_i^y$, with that of selling a bond (borrowing), v_k . The underlying elements of ascertaining the creditworthiness of the agent buying on credit on the one hand and borrowing on the second hand are the same. However, we can refer to some reasons that would bring the transactions costs of credit purchase below borrowing.

1. In the case of the purchase of real assets and other durables on credit, the commodity sold would serve as collateral subject to repossession by the seller. In lending, suitable collateral must be identified and pledged separately. Conceivably, that would reduce the transaction costs involved in buying assets and durables on credit below the borrowing's related costs.
2. We can assume that transactions costs would depend on the ability to repay a loan, which in turn would depend, among other things, on what the borrower does with it. The more such behavior is predictable, the more predictable becomes the ability to repay. In the case of CP, the debtor is certain to use the loan to acquire the commodity or asset in question. Meanwhile, there is no way of telling certain how the loan would be spent in case of borrowing⁹³. Therefore, the ability to repay would be more predictable in the case of credit finance, which would imply lower transactions costs.
3. Banks in an Islamic economic system operate based on universal banking, i.e., they can take equity and provide credit finance simultaneously to the same enterprise. The practice of universal banking in a world of asymmetric information reduces the cost of monitoring borrowers (Aoki 1994, Boyd; 1998 Diamond, 1998) through mixing equity finance with CP. It means that the transactions costs of credit finance provided by banks to enterprises in which they take stock would be lower with universal rather than commercial banking. Such difference would imply lower transactions costs of providing credit purchase to enterprises in which banks have stakes.

⁹³ This is due to the moral hazard associated with the classical loan contract.

We can, therefore, conclude that in a world of Islamic banking, where universal banking is practiced, and especially in the case of financing the purchase of assets and durables, the transactions costs of CP tend to be lower than that of borrowing then purchase, namely $d_{v_i}^y \leq v_k$.

Comparing the interest payment on borrowing, ra_k , in the case of borrowing followed by cash purchase, BAP, with the markup on CP, would be more complicated. The interest rate is charged for delivering present money in return for future money. Meanwhile, markups are charged for providing commodities and assets, also in return for future money. Both interest rates and markups would vary with loan maturities and borrowers' creditworthiness. Markups may also vary with commodities and assets.

There is an essential difference between the interest rate and the CP markup. The interest rate is an administered price set by the monetary authorities as a monetary policy tool. The markup is market-determined. It depends on the commodity and the buyer in question. It is market-determined and directly influenced by price-searching activities.

Meanwhile, a bank's interest rate to a customer's transaction is set based on the monetary authority's base rate. The financial market where the money is loaned against future payment is imperfect. The premium added by the bank to the base rate for any customer is customized to each loan. It can be floating or fixed.

Besides, there are hidden costs in interest-based lending. First, there is an extra cost in how interest due in the loan is calculated, and whether it is compounded, daily, monthly, or less commonly quarterly and yearly. The inability to repay installments because of temporary insolvency is met with penalty rates. The borrower would be uncertain of the final settlement amount, mainly when a variable interest rate is applied and repayment is temporarily interrupted. In the latter case, the penalty rate is often applied to the loan's remaining balance and not just to the unpaid installment.

In contrast, in credit purchase, the markup is applied to the principle to set the amount of repayable debt from the very beginning. It makes it predictable. Temporary insolvency for justifiable reasons is handled with free rescheduling. The debt would not be subject to an increase in amount. Only in delinquency cases, when the debtor fails to pay for no excusable reason, a penalty is set as a payment to some charity, not to be

used by the bank⁹⁴. It is a fact that markups would reflect the rate of time preference on commodities. In contrast, and due to the reasons elaborated above, the rate of interest cannot reflect by any measure the rate of time preference on commodities,

Therefore, we can conclude that the cost of borrowing at the rate of interest would tend to exceed the cost of financing credit purchase, CP.

So far, we have compared the transaction costs of a CP contract with making a loan of equal value. Adding the transactions costs of using the loan proceeds to make a cash purchase to the transactions costs of borrowing. That of purchasing the commodity directly from the supplier, and noting (24) above, we obtain:

$$d_{v_i^y} + b_{v_i^y} < (V_k + V_i^y) \dots\dots\dots (25)$$

It implies that comparing the conditions under which credit purchase is carried out in an Islamic economic system with the way borrowing and then purchasing in a conventional economy, the purchase on credit, CP is more efficient than borrowing followed by cash purchase of the same commodities, BAP.

VII. NOMINAL TRANSACTIONS AND REAL OUTPUT

We can investigate how nominal transactions affect output from several angles.

1. At the outset, nominal transactions provide liquidity to those who sell nominal assets, which they could use to carry out real transactions type I. To the extent that this could *not* be done through credit purchases, nominal transactions could influence real output through stimulating *real transactions type I*. As we have seen above, people will find it cheaper to carry out credit purchases in one step than to do it in two steps, borrowing and then purchasing, in an economy where banks are allowed to sell on credit.
2. We can then ask why people would resort to borrowing to finance their purchases when credit purchase arrangements are available, despite the former's higher transactions costs. One reason would be incomplete information. The calculus of transaction costs may not be

⁹⁴ Remember, we have assumed from the beginning that the rules of Islamic finance are honestly applied and no ruses are used to mimic conventional finance. It is a critical assumption, without which the markup on credit purchase would be subject to the same factors influencing, or even tied to the rate of interest.

as simple and straightforward to many households. However, this would not continue in the long run, as traders would gradually gain more information through the exchange.

3. It is important to note that nominal transactions are not available in an Islamic economic system. As previously mentioned, banks follow universal banking and can trade, do equity, and profit-sharing finance. In parallel, in a conventional economic system, banks are not allowed credit purchase arrangements, especially in the countries that strictly follow the commercial banking style. Therefore, the comparison above is made only for theoretical reasons. Countries pursuing retail banking and countries allowing for conventional universal banking would benefit from introducing Islamic finance (properly applied). The benefits would be cashed in as improvements in efficiency and savings in transaction costs.

COMPARING ECONOMIES WITH AND WITHOUT BORROWING

Let us assume two closed economies of equal resources, one conventional and another Islamic. The aggregate output of each can be divided between consumption, investment, and transactions costs according to the following identity:

$$Y = C + I + V \dots\dots\dots (26)$$

The aggregate transactions costs in a conventional economy, with no credit purchasing, CP arrangements through banks, would be composed of the cost of borrowing (selling monetary assets), the cost of spot purchase of commodities:

$$V_1 = V_M^A + V_Y^1 \dots\dots\dots (27)$$

In an economy with CP arrangements through the banking system, like an Islamic economy, aggregate transactions costs would be composed of the cost of credit purchase through banks and the cost of a cash purchase of commodities by banks from suppliers:

$$V_2 = V_Y^2 + {}^dV_Y^2 \dots\dots\dots (28)$$

As shown in (27) above, the total of CP and cash purchase

$$V_2 = V_Y^2 + {}^dV_Y^2$$

transaction costs of credit purchase, CP, through banks) in (10) would be less than the corresponding total of borrowing and cash purchase transactions costs (by individuals) in (9). It implies that

$$C^2 + I^2 > C^1 + I^1 \dots\dots\dots(29)$$

Therefore, we can conclude that economies with CP arrangements through banks would have relatively more resources available for consumption and investment under the above assumptions.

CAMOUFLAGING NOMINAL TRANSACTIONS

Islam, Christianity, and Judaism have been understood to prohibit nominal transactions. Islam indeed prohibits both debt and pure risk trading. There is some evidence that both Judaism and Christianity ban debt trading (interest-based finance). However, the three religions' followers observed that some of their religious scholars had developed rationales to allow for debt trading. Moslems have witnessed ruses that nominal camouflage transactions make them appear real transactions.

The common approach to this involves sandwiching a nominal transaction between two real transactions. Consider two sale contracts: one is a deferred-payment sale (Bai' Muajal), which sells a commodity to be delivered now, for a price to be paid later in one or more installments at some predefined future dates. If such a commodity bought for deferred payment is sold instantly to its original seller ('Eina) or a third party (Tawarruq), a minority of religious scholars (mostly members of Islamic banks' Shari'ah boards) would consider both contracts combined as lawful. It means that such Shari'ah scholars, who are by no means economists, do not notice the nominal transaction implicitly sandwiched between the two-sale contract. Such nominal transactions are cleverly hidden so that both contracts combined to appear as real and not a nominal transaction. It is admittedly a clever camouflage that could seem persuasive to non-specialists but should not deceive the expert eye.

Pure risk trading has been challenging to camouflage in Islamic finance by Shari'ah scholars. There is, however, one exception. When financial assets, even equity-based like stocks, Sukuk, and fund shares, are sold in credit, it becomes an easy way to gamble on their prices or return rate. Such credit purchase of financial assets should be prohibited, based on the fact that their ultimate consequence is a gamble. However, Shari'ah-board members allow this transaction, refusing to look far enough to see the ultimate result. While such ruses are prohibited in principle, there is no room for this type of prestidigitation in economics.

VIII. CONCLUSION

The above analysis's main conclusion is that open market-access, purchase on credit costs less than borrowing to finance spot purchases. Some observed market behavior confirms that result. Suppliers of durable goods sometimes join banks to offer financing packages to their customers, which combine borrowing and spot purchase in one deal, mimicking credit purchase arrangements in an Islamic economic system.

Islamic banks usually offer credit purchase deals to their customers. In most countries, conventional banks are not allowed to use similar finance modes, while entry to the Islamic banking market is severely restricted. Some Islamic banks in such countries can take advantage of such a monopolistic edge by charging markups, which would be higher than market rates of interest, presumably by the expected savings in transactions costs.

Therefore, we can conclude that a policy that lifts entry barriers facing Islamic banks and allows conventional banks to combine commerce with banking activities contributes to social welfare, provided that Islamic banks apply the Islamic finance paradigm honestly without ruses.

IX. SWAPPING DEBT AGAINST REAL ASSETS

Conventional economies have integrated credit markets. The implications of this on efficiency and stability need to be further explored. In an Islamic economic system, debt created through purchase on credit is unsalable against money, i.e., it is not marketable in the usual economic sense. However, it can be swapped against real assets under some institutional arrangements. We ignored the effect of such swapping on debt liquidity and social welfare requirements because we have no record that it happens on a large scale. Furthermore, perhaps an alternative institutional arrangement for debt swapping could be considered. In any case, we can say that debt in an Islamic economy is of limited marketability.

A further complication relates to the pattern of behavior toward liquidity in economies with limited marketability debt. In such economies, money defined broadly would contain a shorter list of quasi-monetary assets. Besides, credit purchase should have satisfied some "monetary needs" the resulting debt would satisfy some more, albeit within a limited scope. Analysis of the financial market in such an economy would need to consider the full menu of financial assets to see to

what extent people who wish to maintain a certain degree of liquidity can do so.

Finally, we have assumed that borrowing would be made exclusively to purchase commodities and real assets. It is possible, though, that people would borrow to finance nominal assets' purchase. It would be mainly for speculative purposes. Here we need to know how such transactions would affect output on the one hand and whether it would have some bearing on economic stability.

CHAPTER XV: WHAT IS WRONG WITH INTEREST RATES THEORIES

This chapter confronts the basis of interest rate theories, which economists have unquestionably accepted. Irving Fisher (1936) and the previous work by Böhm-Bawerk (1921) have been considered a basis for the neoclassical capital theory. While the bases of interest-rate theories have been taken for granted, interest-rate determination theories have been subject to active debates between the neoclassics and Keynes. We will provide a briefly annotated list of the alternative interest rate theories, leaving their macroeconomic implications to the book's second volume. Then, we will discuss the bases of these theories, to show that their claims are erroneous, particularly their allegation for the existence of *an equilibrium interest rate*.

ALTERNATIVE INTEREST RATE THEORIES

There are five common theories of interest (Wray, 1992). The neoclassical loanable fund theory and its neoclassical siblings are inspired by the neoclassical macroeconomic model, or what has been termed the neoclassical consensus. In contrast, Keynes' theory is an integral part of Keynes' macroeconomic model. We will look into those models in the second volume, as we compare each to our Islamic macroeconomic model. We will focus in this chapter on how the interest rate is determined. Since these theories are based on the concept of time preference, we will direct our critical analysis to show that the link between interest and time preference is missing.

I. THE NEOCLASSICAL LOANABLE FUNDS,

Irving Fisher's theory of interest has been passed on to us as part of the "neoclassical model of interest-rate determination" (Baumol 1977, p. 648), in which the interest rate is one element in the array of prices that emerge from the general competitive equilibrium. Thus, Fisher's interest theory has become part of microeconomics principles derived from using optimization techniques and applying them to a representative firm or consumer. Conard (1959, p. 47) made the direct connection between the two writers even more apparent: "The two major elements in Böhm-Bawerk's (1921) theory, time preference and the productivity of capital provide Fisher's first two approximations".

The neoclassical theory of loanable funds emphasizes real investment and saving flows as the determinants of the interest rate (Wray, 1992). It implicitly assumes that investment is financed at least significantly through borrowing. However, we notice that there are alternatives to finance investment. First, the sale of common stock. The second is a partnership for direct investment. A good part of finance goes to speculation based on debt- and pure risk-trading.

II. KEYNES'S LIQUIDITY PREFERENCE,

Keynes defined interest as a reward for not hoarding money, thereby rejecting the theory of orthodox loanable funds (Keynes, 1973B, p. 214)⁹⁵. Keynes emphasized a monetary determination of interest rates. It implied that Keynes took money as an aggregate of expenditures on goods and services, reflecting an aggregate rate of time preference that summarizes the intertemporal choice. We will return to this critical assumption later and show whether it is the same with neoclassical theories.

Keynes's considered money as a real phenomenon that affects prices via the rate of interest. According to his model, the liquidity preference determines nominal prices. The ultimate result is that when liquidity preference changes, nominal prices change even without a change in money supply (Kregel, 1988, p. 237).

By introducing the flow demand for and supply of loans, Robertson and Hicks accepted a monetary determination. Keynes insisted that the neoclassical theory maintained the old loanable funds approach in making the interest rate a real, not a monetary factor, which is the main difference between Keynes and the neoclassics. (Keynes, 1937, p. 244). In contrast, Keynes made the "equilibrium rate of interest a result of the equilibrium between the demand for hoards and the stock of hoards, while hoarding to Keynes remained a chariot of expectations. Such is a stock equilibrium of the interest rate.

III. THE HICKSIAN NEOCLASSICAL IS-LM SYNTHESIS,

The IS-LM model (Hicks, 1937) has been claimed in its beginning to be that of Keynes. Later it was found to be a Hicks' construction of the

⁹⁵ Had Keynes lived to see our Islamic economics model, he would have considered that placing money in an interest-earning deposit can be viewed from the Islamic vantage point as hoarding.

neoclassical model that unsuccessfully attempted to wear the garbs of Keynes, but later Hicks confessed to its neoclassical roots (Hicks, 1980). It is a genuinely neoclassical construction that is far removed from Keynes'. Therefore, we must keep in mind that the IS-LM is exclusively neoclassical and cannot represent the ideas of Keynes. In this model, the interest rate is determined when the goods, bonds, and money markets are simultaneously in equilibrium, both flows and stocks.

IV. BASIL MOORE'S HORIZONTALIST (OR ENDOGENOUS MONEY)

Some post-Keynesians subscribe to the endogeneity of money object to the theory of liquidity preference. They argue that if the money stock always accommodates the demand for money, the interest rate cannot be determined by the supply and demand for hoards (Moore, 1988). In this case, the LM curve would be horizontal. They are called *horizontalists*, hence. They have adopted a markup approach to interest rates, in which the central bank determines the wholesale rate, and a markup sets other short-term rates over this 'prime cost' (Moore, 1988). Banks then meet all demand for credit at this markup rate by expanding the money supply.

It will not agree with the Keynesians, who accept the basic principles set forth by Keynes. The liquidity preference theory is one of the General Theory's major components. It plays a more fundamental role than just determining the interest rate. Replacing liquidity preference with a neo-classical markup would crumble other General Theory parts. A case in point, the liquidity preference theory and the money multiplier are two sides of the same coin. Arguing that the level of income is determined by equating savings and investment through the multiplier is just the same as saying that the degree of liquidity preference determines the rate of interest' (Kregel, 1988, p. 239). Wray adds endogenous money as a third component of the Keynes theory (Wray, 1992). The three components together determine the equilibrium levels of output and prices.

V. IS THE EQUILIBRIUM INTEREST RATE EQUAL IN ALL FOUR MODELS?

The equilibrium interest rate determined in an IS-LM model will be equal to that of a loanable funds model only under certain conditions (Tsiang, 1956, 1980; Harris, 1981; Kregel, 1988). Furthermore, a liquidity preference model with imperfect foresight in which the (stock) equilibrium is defined for the beginning of the period will establish an equilibri-

um interest rate that is different from that which comes out of a loanable funds (flow) model (Foley, 1975).

VI. THE QUESTION OF THE ENDOGENEITY OF MONEY

Institutionally, the money supply appears to be exogenous. The monetary authority exogenously determines the monetary base for policy reasons. The rest of the money supply is determined by banks' creation of derivative deposits, which depends on the value of the legally imposed required reserve ratio. Keynes, meanwhile, has a different concept for the endogeneity of money. He theorized a demand for money function. He claimed the supply of money would always adjust to the money demand. It surpasses the institutional set up for issuing money to an implicit interaction between the demand for monetary hoardings and the continuous self-adjustment in money supply.

Post-Keynesians mostly subscribe to the endogenous approach to money, according to which the money supply fully accommodates money demand. Under the Hicksian neoclassical model, the LM curve would be horizontal, and the IS-LM equilibrium becomes a flow equilibrium. Since many post-Keynesian claims that money demand is a function of expected expenditures, the Hicksian IS and LM curves are not independent. The endogenous money approach, therefore, contradicts the IS-LM analysis.

VII. THE ESSENCE OF INTEREST-RATE THEORIES

But, how did Fisher's theory of interest evolve? Fisher examined the relation of the income stream over time to the interest rate, the literature has emphasized the connection of Fisher's to Böhm-Bawerk's interest theory. The neoclassical theory of interest emphasizes Böhm-Bawerk as its chief progenitor. Meanwhile, Fisher is credited with formulating a more advanced model based on Böhm-Bawerk's ideas.

TIME PREFERENCE MISUNDERSTOOD

A rather fundamental but difficult question is whether there is justification for the conventional system, which is interest-based. The neoclassics developed a scheme for intertemporal choice within their theory, in which consumers' goods are dated. Using the concept of time preference, they justified a *premium or an agio* for present over future commodities. However, although the neoclassical model is a barter

model, they preferred to discuss the concept of time preference in the context of money rather than commodities, without realizing the big jump from the former to the latter. Along the way, they caused their theory irreparable damage.

Böhm-Bawerk (1891) used the concept of time preference, initially developed by Carl Menger under the title of impatience, as one of the bases of the theory of interest. Then, he jumped into the monetary world by claiming that expressing the interest rate in terms of money did depend upon the monetary standard employed. It means that he believed in some imaginary direct mapping from the barter world of impatience or time preference to the monetary world of the rate of interest. Böhm-Bawerk (1890) justified interest by the presence of time preference and the production time.

Time preference, as could be understood from Böhm-Bawerk, brings to mind the urgency of consumption. It can be a natural result of the fact that humans are mortal. An individual's life can end at any moment. The present is, therefore, more certain than the future. Such an idea can be a mixture of both "need" and income level. At certain levels of income, the homo ordinarius finds that specific basic needs, like bread, rice, potatoes have a higher urgency than meat, fruit, and transport. As income rises, the relative urgency of basic needs changes in favor of other commodities, like meat, transportation, entertainment, etc.

Intuitively, given the level of real income, we can state that each individual would have a different rate of time preference for each commodity. Besides, different individuals would have different rates of time preference for various commodities. In other words, the heterogeneity of individuals concerning their intertemporal preferences and commodities in relationship to their urgency seems to be axiomatic.

Böhm-Bawerk relationship between the time spent producing a good and its time preference is extra subtle. Taking the example of Turkish black olives. They are cured in salt for a period that ranges from 3-6 months. The longer the period, the better the taste. Given the olive quality itself, we can intuitively accept that better-tasting olives are more expensive. When ripe olives become ready to eat after six months, they may be further improved by reducing saltiness. It would take even more time. Therefore, the best tasting black olives command the highest price, based on low or no bitter taste and lower sodium. Commanding a higher

price would reflect the time involved in the production. However, we can consider each olive of a certain quality (taste plus other features) as a different commodity. It would help ignore this complication.

While Böhm-Bawerk's theory has been used by Irving Fisher (1908) to construct a theory of intertemporal choice, and later by Keynes (1936) and the neoclassics in their theories of interest, we take a strong exception in its basic premise. To justify a premium between the present and future consumption of a commodity, based on both factors, cannot be automatically used to justify a premium between the gift and future money. What is required to accept such a jump from commodities to money is to treat money as an aggregate representing expenditures on commodities.

Market prices hardly reflect the rates of time preference for commodities. We can find highly expensive commodities with low rates of time preference and vice versa. Compare the urgency of going from home to the airport in a regular, modestly priced car to go to the same destination by a luxury car. At the same time, the price of the former is lower than that of the latter. The urgency of both is probably equal.

Moreover, the size of productive contribution per unit of a commodity would differ from one individual to another. It even differs for the same individual, from one use to another. Therefore, aggregating a set of heterogeneous commodities, using their prices or even their contribution to production as weights, would not yield a meaningful aggregate to compare over time. In other words, there is no way we can discover a single rate of time preference to be used for the intertemporal allocation of such a group of commodities for a single individual. The same is true for a group of individuals.

To hypothesize a rate of time preference aggregated both over individuals and commodities and attach it to a quantity of money, representing perhaps expenditures on commodities is therefore flawed. Even if we were to consider money as an asset, we could not claim that the relationship between present and future quantity of money measures the same between a combination of goods available now and the same variety available next period, purchased, using money. Given the commodity combination in question, they may be purchased for different amounts of money. It is what the neoclassical theory of the rate of interest, based on loanable funds and Keynes liquidity preference, have

done. The common mistake is to assume a well-defined mapping from a set of commodities, each with a unique rate of time preference ununiformly used by a set of individuals to a monetary aggregate. Some heroic assumptions regarding commodity homogeneity and individuals preference similarity must be swallowed to allege such mapping.

AGGREGATION ANATOMY

The obvious aggregation problem can be further explained. In a world of (n) commodities and (m) individuals, we have a set of commodities

$$X^t = (x_{ij}^t; i = 1, 2, \dots, n; j = 1, \dots, m) \tag{30}$$

AXIOM I: People are mortal with unpredictable life spans, making present consumption more certain than future consumption. Individuals have a parallel set of rates of time preference:

$$A^t = (a_{ij}^t; i = 1, 2, \dots, n; j = 1, \dots, m), \tag{31}$$

Where each rate of time preference is defined by (35) below.

AXIOM 2: Every individual has a different rate of time preference for each commodity, so that:

$$a_{ij} \neq a_{hk}, \text{ for any } h \neq i \text{ and } k \neq j \tag{32}$$

AXIOM 3: The rates of time preference change with income and relative prices.

$$\frac{\partial a_{ij}}{\partial y_j} \neq 0 \quad ; \quad \frac{\partial a_{ij}}{\partial p_i} \neq 0 \tag{33}$$

Where (y_j) is the real income of the j^{th} individual and (p_i) is the relative price of the i^{th} and (a_{ij}), is the time preference for the i^{th} commodity's j^{th} individual.

AXIOM 4: the rate of time preference for any commodity is different for different individuals, or:

$$a_{ij} \neq a_{ik}, \text{ for any } j \neq k \tag{34}$$

Now let us define the rate of time preference as a premium demanded a unit of a present good (a_{ij}), at (t) concerning a unit of the same good in the next period (t+1).

The quantity x_{ij}^t is time-equivalent to the higher quantity x_{ij}^{t+1} , so that

$$a_{ij}^t = \frac{(x_{ij}^{t+1} - x_{ij}^t)}{x_{ij}^t} \tag{35}$$

We can now look at the commodities matrix (X), the time preference matrix A , and the price matrix (P). Each has dimensions of (m individuals times n commodities). At any moment, the amount of money spent on commodities by all individuals is equal to

$$M = PX \quad 36$$

It can be related to the outstanding money supply through the quantity equation:

$$M^s V = PX \quad 37$$

Where (M^s) is the supply of money, and (V) is the velocity of circulation.

We can define for each commodity (x_i^t) a weighted average of its time preference for all individuals, which would be equal to:

$$a_j^t = \sum_{j=1}^m (a_{ij}^t \cdot x_{ij}^t) / \sum_{j=1}^m x_{ij}^t \quad 38$$

In a system with Islamic finance, where banks offer finance through sale contracts, Murabaha would sell commodities against future payment. The sale price would be equal to the cash price plus a markup. If Islamic banks were competitive, i.e., allowed to bid against each other in a freely accessed market⁹⁶, the markup on selling the commodity (x_i) against a price deferred for one year should approach the average rate of time preference on this commodity, or (a_j^t).

People purchasing (x_i) for deferred payments would pay a premium. Its premium would approach the average rate of time preference (a_j^t) under free market access, but should be equal or less than (a_{ij}^t) for the j^{th} individual. In other words:

$$m_{ij}^t \cong a_j^t \leq a_{ij}^t \quad 39$$

We need to extend this setup to a structure that explains the monetary interest rate that evolves in the liquidity preference theory and the neoclassical theories related to loanable funds. As a first step, let us assume an economy without credit. Households purchase their needs against spot payments. Their total expenditures would be equal to:

$$E = \sum_{i=1, \dots, n}^{j=1, \dots, m} p_{ij} x_{ij} = PX \quad 40$$

⁹⁶ Let us keep in mind that we are dealing with a price-search model, where the concept of perfect competition has been abandoned. Competition here is limited to free market access.

Let us introduce credit, assuming that some households purchase their needs in the current period (h individuals) against deferred payment. We can rewrite equation (40) as:

$$E_c = \sum_{i=1, \dots, n}^{j=1, \dots, h} (p_{ij} + a_{ij}) x_{ij} + \sum_{i=1, \dots, n}^{j=h+1, \dots, m} p_{ij} x_{ij} \quad 41$$

Where $[(p_{ij} + a_{ij})]$ is the deferred price of (x_{ij}) .

Equation (41) can be rewritten as

$$E_{c1} = (P_1 + A_1)X + P_2X \quad 42$$

We can replace the rates of time preference of commodities purchased on credit in equation (42) with the rate of interest. It gives us the following equation:

$$E_{c2} = (1 + r)P_1X + P_2X \quad 43$$

Comparing equations (42) and (43), we can conclude that for $E_{c1} = E_{c2}$, the following conditions are required.

First, r would be an exact reflection of A . It means that we can identify a mapping from the average rate of time preference for each commodity to the monetary rate of interest. Interestingly, no neoclassical theory has provided us with such mapping. However, we can show that if everyone had the same time preference of each good, so that time preference itself is independent of both individuals and commodities, the “social rate of time preference” would be one for all commodities. Its assumption is equivalent to having an economy with one household and one commodity.

We conclude that there is no market rate of interest, no matter in which theory of interest you believe. The rate of interest found in an economy is merely an administrative price, which the central bank sets, or a club of banks (as in LIBOR) and imposed on the economy as a part of the conventional banking and finance system.

CHAPTER XVI: THE RATE OF INTEREST & INEFFICIENCIES

In chapter XV, the interest rate theories have been discredited by showing the alleged link between the rate of interest on money and the rates of time preference on commodities has never been established. The surprising conclusion is that our financial system's current interest rate is not an equilibrium rate that can be charged with clearing the money market and reign supreme as an efficiency indicator. The prevailing rate of interest is only an administered price of either loanable funds or liquidity. Like the United States, the monetary authority sets the rate of interest in some countries. Like the UK, a consortium of private lenders set the rate of interest in other countries. As an administratively imposed price, it should cause some macroeconomic inefficiencies. That is what this chapter will try to show.

This chapter takes one further step to consider the inefficiencies resulting from interest-based lending in a price-search model. It starts with questioning the internal logic of the interest rate theories, based on the Böhm-Bawerk concept of time preference and later developed by the classics, neoclassics, and Keynes. Then, the chapter introduces the problems associated with conventional debt. It takes the 2008 International Financial Crisis, otherwise known as the Great recession, as an example of the serious economic problems caused by conventional debt. It provides an example of how such crises would have been handled, if it ever occurs, in an Islamic economic system. It leaves the reader with the difference between subsidizing lenders, which customarily occurs in a capitalist economy, and subsidizing debtors, which would rule in an Islamic economic system.

After a brief explanation of Islamic finance, the chapter looks into how money is introduced in the economic theory to investigate efficiency issues. It explains two significant efficiencies that may arise in a monetary economy with search costs. First is the Friedman-Samuelson inefficiency manifested in the substitution of real resources for money, when the purchase of present for future money carries a premium. The second type of inefficiency, named after Hosios, results from price-searchers' inability to internalize their search cost.

This chapter's surprising result is that Islamic finance helps eliminate Samuelson-Friedman's inefficiency. It also brings down the Hosios inefficiency to a much lower level.

DOES CONVENTIONAL FINANCE CAUSE INEFFICIENCIES?

The use of the classical loan contract, which amounts to the trade of present against future money at a premium and is equivalent to debt and pure risk trading, is associated with serious inefficiencies. The first is Samuelson-Friedman's inefficiency. The payment of a positive (interest) rate of return on money, with guaranteed principal and return. Motivates traders to economize on the use of cash in transactions. The substitution of real resources for cash would reduce output below optimum. The second is Hosios inefficiency, resulting from externalities in search activities by agents. Failure to internalize such externalities would reduce the volume of transactions below optimum.

The chapter argues that the switch to Islamic finance removes both inefficiencies and other advantages regarding price stability.

INTEREST, RELIGION, RUSES, AND THE ECONOMY

Muslims do share the hatred of Reba or interest with almost all religions. However, other religions have been less forceful in prohibiting Reba. Followers of older religions instead of articulating how such prohibition should be enforced produced arguments and caveats that practically made such prohibition appear archaic and irrelevant. They have used what Muslim Fuqaha' call "heelah" or ruse. The earliest ruse we know of was when Jews found ways to fish on Saturdays. Since then, ruses continued to chip away from religious teachings everywhere.

When conventional finance was transplanted into our economies, either by the influence of colonialism or by making Muslims themselves, some Muslim intellectuals wondered how to apply Islamic economics. All ruses and arguments presented to change the Muslim mind regarding Reba failed. It happened despite several prestigious names in the religious hierarchy attempting to lend credence to accepting the interest-based economic system.

The repeated failures of the capitalist market economy have worked as essential pointers to remind Muslim intellectuals of two things. First, the received economic doctrine is not credible and requires fundamental reformulation. Second, the current institutional arrangement is incapable

of reaching the economic objectives that we all cherish: full employment, balanced and sustainable growth, stability, and equity.

At first, we notice that the classical loan contract has taken hold of our economies. Conventional economies are simply lending-based. Looking everywhere, one will find that all economic processes are based on lending. Money is issued to be lent to the government and banks. Financial resources are allocated based on the ability to pay, a lending criterion. Fiat or paper money, which has no intrinsic value, is traded in the so-called money markets. Spot money is purchased against future money or debt in organized bond markets and at the counters of conventional banks.

Basing economic processes on lending has vacated our economies worldwide from efficiency, which is one of the ultimate goals of economic organizations. Besides, debt markets have expanded through synthetic securitization to include pure-risk trading side by side with debt trading. Financial markets that were supposed to be outlets to finance production and trade turned into gambling casinos. They became an attraction to hot money, which finally made them a source of economic instability and contagion. In other words, by insisting upon using Reba, our economies have lost efficiency and stability in one shot.

PROBLEMS WITH REBA-BASED ECONOMIES

We can safely say that the most conspicuous yet ignored characteristic of the conventional economy is crisis-prone. We can count at least 49 crises witnessed by Western economies until the International Financial Crisis, otherwise called the great recession, which continued from 2008 to 2012.

Reba-based economies suffer from a 'broad dichotomy between the financial and real sectors. Finance is mostly provided through loans, based on collateral, and far removed from the funds' expected returns. It facilitated transferring astronomical amounts of resources to debt and risk trading in financial markets. It enforced the gambling nature of such markets and augmented their size to reach many folds the size of the real economy.

Islamic economics has started to focus on contrasting the investment and productivity-based economic processes, which can only be present in a Reba-free economy, with the lending-based processes. Its effort leads directly to debunking conventional macroeconomics based on Keynesianism or neoclassical concepts.

Once the interest rate and the classical loan contract are removed, an Islamic economic system would automatically become investment- and productivity-based. The classical loan contract would be replaced with at least 20 Islamic investment and finance contracts in addition to numerous finance products. Imagine, if money is issued, not to be lent to the government, but to be invested, if financial resources are provided, based on the return from using finance, not just the ability to pay, all debt and risk trading would disappear. All radical changes in the economic system structure would bring about equally radical changes to the economic system. The benefits are enormous, as full employment would be reachable, and the concept of “a natural rate of unemployment” would be abandoned. We would no longer have to cope with continuous inflation, even at low rates. The problem of poverty would be handled by making the poor more productive. People would take control of most health and education services and relieve governments from the necessity to keep taxing the population.

HOW WOULD ISLAMIC ECONOMICS HAVE HANDLED THE IFC?

How would an Islamic economist have advised President Obama when he was replacing President Bush to handle the International Financial Crisis? First and foremost, grant free rescheduling to debtors. It would protect banks from failure and prevent a drastic reduction in aggregate demand. If the \$2 trillion which has been spent on bailing out big banks and financial institutions were used in providing debt relief to debtors, which they could subsequently repay to the government, the crisis would not have started.

However, to prevent such a crisis from recurring, which is an eventuality in the current system, we must introduce institutional changes to every economic system to transfer it from being lending-based to investment-based.

The Muslim contribution of Islamic economics is coming at an opportune time. The bread and butter of humanity are at stake. The current economic structure is faulty. We have parted with the last crisis, but we wondered when the next one would be. While this book is on its way to the publisher, the Covid 19 crisis is still simmering. Before it had started, there was an economic crisis in the making. Muslims have the honor to bring forth effective medicine. Islamic economics is ready to be taken in full doses and save humanity from its current predicament.

ISLAMIC VS. CONVENTIONAL FINANCE

Conventional finance is based on the classical loan contract: to trade present money against future money at a premium. Islamic finance uses profit and product partnerships, leasing, and investment agency contracts instead. Time preference is recognized and apparent in commodities. Commodities are sold for a lower price when payment is spot and a higher price when payment is deferred. Since there are no instances of trading present against future money, time preference cannot be claimed to manifest itself in a money market.

Finance is provided in the form of money in return for equity or rights to share in future business profits or products, in addition to the form of goods and services delivered in return for a commitment to repay their deferred prices or through spot payment against the future delivery of goods and services.

HOW MONEY CAN BE INTRODUCED INTO ECONOMIC THEORY

During the last three centuries, the Western World has evolved the current finance system around one cornerstone, namely, interest rate. Massive amounts of debt and risk trading in national and international financial markets are concluded every working hour, exceeding in few days the gross domestic products of many countries. Since then, lending at a rate of interest has become a household practice worldwide.

Despite repeated economic crises, including the Great Depression of 1930, and the Great recession of 2008, it seemed to many, especially, neo-classical economists that no wrong could be found with the system. Meanwhile, crises occurred at short intervals. The American economy has witnessed about 35 crises before the Great Depression. Therefore, it appears surprising to find economists shocked by the extent of the Great Depression of 1930 and how it brought American and European economies to a standstill. Perhaps economists have become used to repetitive downturns, which they made part of their theory of business cycles.

Nonetheless, the market economy of today seems to be crises prone. One should not be surprised when a crisis takes place. Instead, one should ask when the next crisis will be.

On the practical side, the Great Depression has been confronted with the Roosevelt New Deal, which included expansionary fiscal policies. Furthermore, major proposals of reform have been advanced to immun-

ize the Capitalist system from crises through the Chicago plan presented by Simons (1936) and Fisher (1936).

The Chicago plan revolved around narrow banking and the switch to total reserves. The Keynesian school that was relatively more involved in policymaking during the Roosevelt era focused on the banking system's failure to increase credit to the real sector (Alacevich, Asso, and Nerozzi, 2015).

The Keynesian revolution helped advance economics mature as a social science while being dominated by two schools of thought that competed for both intellectual and political influence, namely that of Keynes and the neoclassics. Economists considered the rate of interest as a price. Specifically, it is the relative price of present money to future money. You could rarely find an economist who would call for a zero price of anything, as prices serve as essential tools in resource allocation and a coordination force among decision-makers in the economy.

The theory of value has been developed in a world without money. To construct an economic model where money can justifiably serve as a means of exchange, i.e., a *monetary model*, economists discovered that they must add friction that becomes the *raison d'être* of money. Several models with friction sprang out for this purpose⁹⁷.

OPTIMALITY IN SEARCH ECONOMIES

A. THE HOSIOS TYPE INEFFICIENCY

Monetary models use frictions in the goods market to justify the existence and the use of fiat money. Search monetary models (Kiyotaki and Wright, 1991, 1993) use decentralized exchanges as frictions (Kocherlakota, 1998). Due to such frictions, agents cannot execute all socially desirable trades.

In a monetary economy, where the money is actually and justifiably used, the information would be costly, and searching by economic agents would be a necessary outcome. Buyers and sellers would search for the best match. However, gains from search would be unevenly distributed between trading partners. Those who spend more resources on search and gain more information about the counterparties have no way of internalizing such externality through selling some of it to other traders.

⁹⁷ (Kiyotaki and Wright, (1991, 1993) and Kocherlakota (1998)

Any two trading agents have either asymmetric bargaining powers or asymmetric demands for the goods each wishes to exchange with the other. The lack of double coincidence of wants can be manifested in the form of asymmetric demands, but not necessary to justify the use of money in a search model, Engineer and Shi (1998, 2001) and Berentsen and Rocheteau (2001).

Money facilitates exchanges in asymmetric matches. Money can be justified based on facilitating exchange and improving social welfare where the two agents have *only a single coincidence of wants*. Monetary equilibrium in such models suffers from two types of inefficiency.

First, buyers in each match are constrained by the available real money balance. As money is costly to obtain, they cannot purchase the optimal amount; the quantity of goods in each trade is less than efficient. It is called the Friedman-Samuelson inefficiency (Samuelson, 1958; Friedman, 1969), which results from a positive monetary rate of interest, where the money is costly to obtain.

Second, traders' search improves their partners' matching probabilities. The more they search, the more they interact with trading partners, and the higher the likelihood of other partners encountering them and trading with them. More search would be a benefit to partners, but external to traders. Traders are likely to ignore such externalities. They will stop searching before benefiting all potential partners. The number of trades would be less than efficient. It is called the Hosios type inefficiency that results in a search economy (Hosios, 1990).

B. THE FRIEDMAN-SAMUELSON INEFFICIENCY

The Samuelson- Friedman inefficiency related to the positive interest rate was discovered earlier before introducing search models. Monetary economists found that a zero nominal interest rate is necessary for the optimal allocation of resources (Samuelson, 1958; Friedman, 1969).

The reason is simple. In a world with fiat money, adding one marginal unit of real balances costs no real resources to the community. Therefore, imposing a positive price on the use of money would lead traders to economize on the use of money in transactions in their pursuit to minimize their transaction costs. They would, therefore, use some real resources instead of money in transactions.

However, when the rate of interest is zero, traders will have no incentive to substitute real resources for money. Additional real resources can,

therefore, be released for consumption and investment. When this matter was investigated within general equilibrium models, it was found that a zero-interest rate is both a necessary and sufficient condition for allocative efficiency (Cole & Kocherlakota, 1998; Chari & Kehoe 1996; Wilson, 1979).

Though these theoretical results are dependent on some simplifying assumptions, they are robust in various models (Correia and Teles, 1997). They imply that the long-forgotten Christian and Jewish teachings and those of Islam, Buddhism, and Hinduism that prohibit the charge of interest on loans are not an aberration. It is incredible to see such religious teaching valid after being ignored for so many centuries.

Milton Friedman suggests steadily contracting the money supply at a rate equal to the representative household time preference (Friedman, 1969, p. 34 quoted by Ireland, 2000).

Accordingly, economists continued to search for monetary policies that would bring interest rates to zero, to reach an optimal allocation of resources. They depended on the relationship known as the *Fisher hypothesis*, which decomposes (in the terms used by St. Amant, 1996) the nominal interest rate as the sum of the expected inflation rate and ex-ante real interest rate:

$$\dot{i}_t = r_t + E(\pi_t) \quad 44$$

where i_t is the nominal interest rate at time t . r_t is the *ex-ante* real interest rate, as defined by Cole and Kocherlakota (1998): the rate of return on the real (physical) capital net of depreciation or the rental rate on capital goods. $E(\pi)_t$ is the expected inflation rate at time t for a specified future period.

Setting i_t equal to zero implies that the rate of deflation is equal to the real rate of interest r_t . Therefore, it appears that deflating the economy at a rate equal to the real rate of interest would automatically set the (nominal) rate of interest to zero. It would be the optimal monetary policy rule that ensures that financial resources are allocated efficiently.

Such a policy rule implies that the optimal rate of inflation is negative. However, Central bankers would never seriously advocate a long-run deflation policy (Wolman, 1997)⁹⁸.

⁹⁸ Economists also recommended the application of 100 percent required reserve ratio. However, policy-makers have not been impressed, despite the obvious benefits.

Deflating the economy would bring with it several problems both conceptually and practically. Conceptually, economists would naturally worry about the existence of a liquidity trap when the rate of interest is zero (Uhlig, Harald, 2000). Another conceptual problem is the volume of money supply shrinking over time. Practicalities mandate that such volume would be (numerically) sufficient to carry out transactions at the current price level. Economists, as they often do, assume divisibility. Therefore, money can be used in infinitesimally small denominations so that a dollar can be broken into cents and cents can be split into smaller parts, and so on. It may go on and on until money vanishes.

Several economists suggest deflationary policies to be exercised only asymptotically to apply Friedman's Rule (Cole and Kocherlakota, 1998). Asymptotic behavior of deflation is a claim that can conflict with the rule that it should be equal to the real rate of return. It is not perceivable in a growing economy to have a real rate of return that behaves asymptotically.

Some claim that even if the asymptotic conditions are not fulfilled, short-term monetary policy constraints can do the job (Ireland, 2000). Others may worry that when the rate of interest becomes very low, monetary authorities have less leeway with adjusting it downwards in the face of recession. Meanwhile, some economists respond by proposing alternative ways to overcome the zero-bound on interest rate policy (Goodfriend, 2000). Another conceptual problem is that deflation has efficiency problems parallel to inflation, even at very low-interest rates (Lucas, 1994). However, the welfare cost of implementing a zero rate of interest has been found negligible (Wolman, 1997).

Many economists appear to dismiss the practical and conceptual problems involved with zero interest rates. Nonetheless, monetary authorities are not yet impressed. So far, no monetary authority has come forward to adopt the optimal monetary policy rule.

Without following Friedman's rule, the availability of money through the classical loan contract, i.e., the purchase of spot money for future money at a premium, causes both types of inefficiency. Samuelson-Friedman's inefficiency is assured because of the positive interest rate. Hosios inefficiency exists too because the process of finance does not interfere with asymmetric matches.

WOULD ISLAMIC FINANCE REMEDY BOTH INEFFICIENCIES?

The shift to Islamic finance would have to involve a few institutional changes:

First, banks would give up the use of the classical loan contract in favor of 20 or investment and finance contracts that can be grouped into four categories of equity, profit and product sharing, agency investment, and sale finance. Second, all money issued by the central bank would be placed in investment accounts with banks, called central deposits or CDs, while total reserves are observed. Third, the central bank issues central deposit certificates, CDCs whose proceeds would be placed in CDs. The central bank would conduct monetary policy by changing the money supply by adding or withdrawing from CDs. Fine-tuning would be done through open market operations in CDCs. The rate of return on CDCs, or RCDC, would become the opportunity cost of holding money and would approach the real rate of growth.

The optimal monetary policy rule would equate the rate of monetary expansion with the rate of growth, which is either approximated by or estimated, based on the RCDC. Absolute price stability would be the natural result of such a policy.

Conventional finance stipulates an administratively determined rate of interest on loans, while the classical loan contract guarantees principal and interest. Under Islamic finance, the RCDC is market-determined and paid on Mudaraba deposits whose principle and return are not guaranteed. The incentive to economize on real balances in transactions would be eliminated, and the Samuelson-Friedman inefficiency would consequently disappear.

The availability of finance through the 20 Islamic financial contracts, i.e., through equity, profit and product sharing, investment agency, and sale finance, can positively affect the process of trading. On the demand side, people would not use banks to finance small-scale transactions, like buying groceries. Better candidates for finance would include household appliances, transport, furniture, plant and equipment for businesses, commodities imported or locally purchased by wholesalers in bulk, and the like. Suppliers would be anxious to provide price offers to banks under standby arrangements to boost their sales on the supply side. Other suppliers and businesses which require finance would rely on banks to finance their purchases, which are usually made in large quantities. Banks

would, therefore, finance large size deals, where gains in information searching are the most.

In providing sale finance, banks join both buyers and sellers in their search and price bargaining. Their wide contacts on both the demand and supply sides help them acquire a comparative advantage relative to individual traders in information collection, benefiting from scope economies. They conduct their search in each market globally, covering all essential trading opportunities.

Such comprehensive search affords banks significant information benefits that can be easily transferred to their finance customers in better matching opportunities and lower prices due to total prices searching and quantity discounts.

Traders obtaining finance from and suppliers providing commodities to banks would enjoy an improvement in matching possibilities. They would receive or supply their commodities at much better prices than if they did the searching themselves. The banks' gains in the search would, therefore, be internalized. It would be sold to its finance users on the demand and supply side. Furthermore, they would obtain favorable trade deals with finance.

By providing sale finance, banks play a catalytic role in matching buyers and sellers. They internalize all price-search externalities by improving buyers' and sellers' match opportunities.

When equity finance is carried out, banks' participation in capital subscription provides a signal to other investors that a sufficient amount of due diligence has been done to avoid the lemon problem. It would be instrumental in attracting other equity investors to the same venture. The same applies to Mudaraba, Wakala, and Ijarah's finance.

Such finance deals would also supply banks with more information that supports their global search in each market for matchings and prices. They strengthen their role as partners in profit and product. Their membership on boards of directors would be supported by such information in playing their leading role in improving their business partners' governance and operating efficiency. In particular, their financing activities, using Ijarah, Istisna' and Salam, would immerse them in essential markets and offer them rare expertise to add to their information pool. More would be available to be transferred to their finance customers as inter-

nalized benefits, whether they are equity partners, Mudaraba or Wakala partners, or Ijarah, Istisna' and Salam partners.

Indeed, the bulk of information accrued through the multi-faceted finance activities of banks, which is gained mainly through large scale deals, would be available to be transferred to customers as real benefits. Undoubtedly, banks would sell such externalities for a price. However, keeping open access to markets, including the bank sector, would keep the prices of such services competitive and below what the individuals and businesses can obtain without accessing bank finance.

CONCLUSIONS

Switching from interest-based finance to Islamic finance would serve two purposes simultaneously. First, money would have no positive rate of return, and consequently, traders have no incentive to economize on money in transactions. The volume of real balances used in transactions would reach its optimum. Second, all search externalities related to significant trading deals would be internalized to trading partners through banks providing Islamic finance,

CHAPTER XVII: ISLAMIC FINANCE CONTRACTS & INSTITUTIONS

This chapter offers a complete arsenal of Islamic finance contracts. It starts with partnership finance modes, encompassing partnership in profit and product. The latter type of contracts has been ignored, as it has been mistakenly thought to be limited to agricultural finance. Their relationship with financing agriculture and forestry is not denied. However, they can be equally effective in the financing industry and trade. It is a field that requires a good measure of creativity.

Another aspect of creativity is product structuring, which means mixing and matching finance contracts to reduce information asymmetry among contracting parties and their associated risks of adverse selection and moral hazard. The variety of Islamic modes of finance is a vast bridge to the Islamic finance products. While the conventional finance kitchen has only one ingredient upon which to base its menu, Islamic finance has a richer collection of ingredients that offers a vast range of financial products.

The chapter also provides details regarding deposit products and the especially beneficial features of securitization to produce Islamic financial instruments. It enumerates the common types of Islamic financial instruments. The chapter examines the trading rules for Islamic financial markets where Islamic financial instruments are traded.

The appendix of the chapter lists all twenty Islamic finance contracts. Such a list cannot be considered exhaustive but remains open to more additions by those who can take advantage of the wide range of financial innovation available in Islamic finance.

ISLAMIC BANKS

Islamic banks operate in ways that differ from their conventional counterparts. They mobilize financial resources through Mudaraba (profit and loss sharing, PLS) on the liability side. The fund owner allows the bank to invest his/her funds in return for a pre-agreed share in the profits.

Funds can also be mobilized through Wakala, or agency contract, where the bank acts as the customer's agent in investing the funds in return for a paid commission regardless of the results of that investment.

On the asset side, Islamic banks can provide funds to customers (households and business enterprises) through 20 contracts or finance modes elaborated below.

ISLAMIC MODES OF FINANCE

In place of the classical loan contract, an Islamic bank can use 20 contracts to mobilize or place resources in investment. They are known as “the Islamic modes of finance.”

Islamic modes of finance can be grouped into three categories: (i) partnership in profit and product, (ii) commodity finance, and (iii) leasing, (iv) Agency Agreement.

I. PARTNERSHIP IN PROFIT:

The bank can advance funds based on Mudaraba, where only profit and loss are shared, but management remains with the finance user. Funds can also be advanced through Wakala (agency agreement), restricted or unrestricted.

Partnership in profit and product is a form of equity finance. It encompasses two forms: Musharaka and Mudaraba. Musharaka entails sharing in both management, profits, and losses. Musharaka can be diminishing, meaning that it can be made for a certain number of years, during which the bank’s share in the joint venture would be extinguished every year.

1. Meanwhile, Mudaraba finance implies that finance providers would provide finance for a profit share only but not in management. It usually takes place not for the financed enterprise's whole life, as in Musharaka, but for a shorter period, as in working capital finance. Mudaraba can be unrestricted (bearing no preconditions) or restricted, e. g., by type or place of investment. Hence, a partnership in profit includes the following forms: Unrestricted Mudaraba,
2. Restricted Mudaraba,
3. Musharaka,
4. Diminishing Musharaka,

II. PARTNERSHIP IN PRODUCT

Partnership in a product is designed to be used in financing agricultural activities and include:

1. **Mozart's** bank tills the land for its owner in return for an agreed part of the produce. The bank will, therefore, finance the process of cropping.
2. **Mussaqa**h is an agreement in which the owner of a garden shares its produce with s person in a pre-determined ratio in return for the latter's services in irrigating the garden. Mussaqa is also applicable to trees used for purposes other than fruits like wood, oil, and rubber. It can also involve crop enterprises besides orchards/trees.
3. **Mugharassa** is an agreement in which a property owner gives his bare land to the bank to plant fruit trees in return for a share in the trees or fruit. In this case, the bank provides all finance for planting the trees.
4. **Investment Wakala** or Agency: The bank advances funds to an investor to invest in return for a commission, while all profit is gained and the bank bears all loss. The bank may provide an incentive, a portion of the profit over and above a certain *hurdle rate*.
 - 4.1. Unrestricted Wakala: The bank provides investors with funds to invest without restrictions.
 - 4.2. Restricted Wakala: The bank provides investors with funds to invest with certain restrictions, usually a group of dos and don'ts.

III. COMMODITY FINANCE:

Financing commodity purchases can be made through sale contracts that take several forms. First, the bank may purchase such commodities and sell them against deferred payment, usually done in installments. One way to conclude such a sale is through *Murabaha*, a procedure where the customer provides a self-binding promise to purchase commodities at cost plus a markup. Based on this promise, the bank purchases and takes possession of such commodities signs a sale contract that sets the payment schedule, and delivers the commodities to the customer.

Alternatively, the bank may have acquired certain goods, e.g., consumers' durables, vehicles, etc., and placed them in showrooms. It offers them directly to customers against deferred payment, *Bai' Bethaman Ajel*. Second, the bank may advance the value of commodities, e.g., agricultural products, to finance their crops. Commodities would be delivered at a predetermined future date. Such a contract is called *Salam*.

Another form of sale is *Istisna'*, which means a command to manufacture. Such a contract is useable with commodities with known specifica-

tions but must be manufactured. The customer signs an *Istisna'* contract with the bank to manufacture, e.g., passenger planes. In turn, the bank signs a parallel *Istisna'* contract with the actual manufacturer to produce the aircraft. The bank pays the manufacturer according to verified stages of production, while the customer pays for the planes in installments.

Alternatively, the bank can purchase assets or command their manufacture and sell their usufruct to customers, i.e., lease the assets under an operating *Ijarah* (lease contract). It can also lease such assets based on *Ijarah Muntahia Bettamleek* (lease that ends with title transfer or financial lease).

Commodity finance implies that the financing institution provides goods and services for spot delivery in return for a debt instrument that promises the payment of their value at a specified future date. That value differs from spot prices by a certain margin called mark-up.

The debt instrument is not negotiable. In temporary insolvency, the debtor is granted an extension with no increase in maturity value. Only delinquent debtors with no valid excuses can be subjected to penalties. Alternatively, the financing institution can pay the value of the goods and services spot and get them delivered at some specified time in the future. In this case, the debt instrument would be written in terms of goods and services.

Some may think that this type of sales finance is no different from interest. They may say that trading present against future money involves an explicit part, while trading goods against future money may involve hidden interest. While interest, as explained in a previous chapter, does not reflect time preference, markups do. Furthermore, there are several differences between the rate of interest and sale finance markups⁹⁹. First, the nominal value of the debt involved in sales finance cannot grow by itself. The value of debt is set at the time of sale and cannot be increased.

In contrast, interest is set as a compound rate per unit of time, allowing the nominal value of debt to grow until it has been repaid. Second, finance is provided in conjunction with acquiring and subsequently using a commodity. It has serious implications concerning the relationship

⁹⁹ This explanation has been mentioned in a published paper and credited to one of the two anonymous referees. I reiterate my thanks to the referee who have contributed to improving that paper.

between the real and the financial sectors, which will be taken up further below.

Commodity finance also involves Ijarah or leasing. In turn, it can take the form of operating lease finance in which the financing institution purchases a durable asset and leases it to a customer. The rental is paid regularly, reflecting the cost of holding, maintaining the asset, and transferring the title to the asset from the financing institution to the finance recipients. It can take the form of a financial lease, i.e., a lease that ends up with a title transfer to the lessee.

Therefore, commodity finance modes include:

1. Murabaha,
2. Bai' Bethaman Ajel,
3. Salam,
4. Istisna',
5. Operating Ijarah, and
6. Operating Ijarah and Musharaka Mutanaqessa

Therefore, we can expect Islamic banks to hold equity in corporations and sit on their boards of directors. They use the information obtained from their vantage point to reduce risk from information asymmetry and to fine-tune their finance directed to the same corporations. Further, they can trade in goods and services, provide Islamic insurance, and operate in financial markets. In other words, they operate like *universal* rather than commercial banks.

IV. BANK DEPOSITS IN ISLAMIC BANKING

In addition to demand deposits, which are guaranteed but earn no return, Islamic banks also take investment deposits for specific maturities. Investment deposits are either general or restricted. General investment deposits are pooled with bank shareholders' equity in one pool and invested in several ways. Each earns a proportional share of the net profit of the pool. Restricted investment deposits are placed in specific investments chosen by respective depositors and earn a proportionate share of their investment profit.

In all cases, Islamic banks use the deposits they obtain to provide finance in the modes outlined above and get a proportion of the profit or a commission as a fee.

Islamic banks get a proportion of the profit in compensation for their efforts; the profit-sharing ratio between each bank and depositors must

be set at the outset. However, the actual rate of return eventually paid out on Investment deposits is not predetermined. It is closely linked to the real economy's performance, as finance modes are generally directed to finance trade in goods and services and the actual production processes. It also depends on individual banks' performance concerning the choice and investment management investment.

ISLAMIC NON-BANKING FINANCIAL INSTITUTIONS

Various non-banking financial institutions collect funds without taking deposits and using Islamic finance modes to provide finance to entrepreneurs. They mobilize funds by selling stocks, mutual shares, and various instruments with a wide choice of risk-sharing and maturities.

Non-banking financial institutions have greater flexibility to deal with equity and partnership than universal banks, as they are not encumbered with guaranteed demand deposits. Therefore, the advantages of financing working capital requirements to enterprises holding equity can be more pronounced than in universal banking.

More light can be shed on how Islamic banking and financial institutions operate when explaining Islamic finance modes.

TAKAFUL

Being on Islamic economics, this book had to say something about Takaful. Takaful can better be handled in a book fully dedicated to Islamic finance. However, we thought it would be useful to list briefly some of the issues discussed by Takaful.

After almost half a century of development, the Takaful industry still struggles with standardized practices and regulations (Olorogun and Azman, 2014). More attention from academics and practitioners needs to be directed towards operational issues, e.g., underwriting and rating, critical to the industry.

Compared to conventional insurance life span exceeding five centuries, Takaful is relatively new.

I. FUNDAMENTAL ISSUES IN TAKAFUL

conventional insurance is similar to the pre-Islamic Arabian system of mutual prudence, which was used in murder cases to prevent further bloodshed (Hussain & Pasha, 2011). When a man from a tribe killed another man from another tribe, the killer's tribe pays a ransom to the other

tribe. Islam approved such practice as an act of life preservation, one of *Maqassed al-Shari'ah*. While such semblance is controversial (Olorogun and Azman, 2014), it has been used as an argument to justify the agency, investment, and the combined agency-investment models of Takaful (Olorogun, 2013). Such models, however, still raise serious doubts about their applicability. Although conventional insurance is protection, not an investment industry, it is quite different from takaful Al-Qari (2009), and Al-Suwaylim (2009) considers takaful as a cooperative or mutual system. It is just an example of a difference of opinions regarding Islamic insurance's fundamental theory.

II. AGENCY AND INVESTMENT AS OPERATIONAL MODELS OF TAKAFUL

When the contract is based on agency, the participants become the “principal” or the owners of the Islamic insurance funds, while the takaful operators become the “agent” employed to manage the funds on behalf of the principal (Al-Suwaylim, 2009). The principal in English law and Shari'ah possesses the right and power to dictate the terms of the contract and agency fees. However, the Takaful operator can fix each participant's contribution and judge its qualifications to be accepted into a certain pool of funds (Olorogun, 2013). The operator has a free hand in using the funds (Olorogun, 2013). Similarly, the “investment model” raises questions regarding the objectives of Takaful (Olorogun, 2013). They are bearing in mind that this industry intended to eradicate or compete with conventional insurance. Mohd Noor (2009) argues that takaful participants need more than protection, as Rating agencies worry regarding considering participant's contributions as “donation (charity).”

Meanwhile, Al-'Anzi (2009) and Al-Dawsari (2009), who are critical of Islamic insurance, raise serious objections to many of the writings and Takaful practices, to the extent that the former claims that there is no difference between takaful and conventional insurance. He explained that this disturbing state of affairs was due to the lack of proper deliberation and sound academic research, which led to Islamic insurance failure. Al-Jurf (2009) questions the legitimacy of a gift, wondering whether someone can be given a gift from his personal property.

The arguments are numerous, and Takaful's topic bears more theoretical and empirical investigation.

ISLAMIC FINANCIAL INSTRUMENTS

Financial instruments play an essential role in reducing transaction costs for both savers and investors. As they can be tailored to both parties' tastes and requirements, they can drastically reduce the cost of negotiating terms related to size, maturity, profit-sharing formula, and other relevant conditions.

Financial instruments increase financial institutions' reach to fund suppliers and users, enabling institutions to deal with large numbers of customers and thus realize significant economies of scale. Its *reach factor* manifests itself through trading instruments in primary and secondary markets. We can find two advantages of Islamic financial instruments over their traditional counterparts in this regard.

First, in pricing their services, Islamic financial instruments' issuers have *wider latitude*. When dealing with savers and investors, they negotiate a profit share between zero and 100. Meanwhile, conventional security issuers are bound to arrange a small cut within the much narrower differential between the borrowing and lending rates. Wider latitude enables Islamic banks and financial institutions to be more effective in mobilizing resources on the one hand and attracting investors on the other.

In a conventional economy, when Islamic banks and financial institutions raise the rate of interest to mobilize more savings, they have to charge investors correspondingly higher rates of interest. In Islamic finance, Islamic banks and financial institutions can mobilize more savings by offering higher profit-sharing rates to savers; the profit here would be obtained from investment net of all costs, including finance costs. Meanwhile, they can entice more investment by offering investors a higher profit share, which would lower finance costs. In other words, attracting more savings draws more investment in Islamic finance. Therefore, Islamic finance can be said to have the *consistency of purpose* missing in conventional finance.

It is rather interesting to conclude that financial intermediation in the non-banking sector would imply lower transaction costs and mobilize both savings and investment more effectively than conventional finance.

BENEFITS OF SECURITIZATION

Securitization requires a separate chapter. However, we will take this opportunity to mention that Islamic financial products' securitization is an essential tool, as it provides such products more liquidity. The securit-

ized products can be traded in secondary markets as they are titles to common shares in assets. Negotiability of Sukuk, investment deposit certificates would be instrumental in providing quick access to investment outlets by purchasing such instruments while providing quick exit to those who want to switch to more liquid assets.

Besides, securitization of deposits can produce financial assets that can be used as money-market tools. Its particular aspect would be taken up later on in the second volume of the book when we discuss the Islamic monetary and financial structure.

FORMS OF FINANCIAL INSTRUMENTS CAN

I. SHARES IN COMPANIES:

Shares in companies represent undivided common shares in the company's net assets. For the company to be "Shari'ah-compliant," it must be established for a lawful purpose. It should not trade in or produce unlawful goods (goods prohibited by Shari'ah), like tobacco, alcohol, narcotics, pork and pork products, illegal weapons, and products that harm the human, animal, or plant life or the environment. The company must not deal with conventional debt.

Since such companies are rarely found in contemporary economies, Shari'ah scholars have set some guidelines or standards to screen companies. As a transitory measure, standards tolerate specific percentages of impermissible activities. Guidelines are considered transitory and modifiable as more Shari'ah-compliant companies are established.

II. SUKUK

Sukuk are undivided common shares titles to real assets, usufruct, goods, and services. They can be issued to securitize a bunch of assets, such as leased real estate, machinery, or equipment. Sukuk holders are considered as owners of common shares in the securitized bunch. The securitized basket can also include receivables from Shari'ah-compliant activities, debt created through commodity finance, and cash. However, a specific limit on the percentage of such monetary assets included in securitization must be observed.

Sukuk can also be issued to finance projects. Sukuk holders would own undivided common shares in the project's net assets securitized. Sukuk can be issued to securitize one or more projects, e.g., finance the government investment budget, a collection of infrastructure projects, or

a group of development projects. They can also be issued to finance trade or any type of short- or long-term investment.

III. OTHER ISLAMIC FINANCIAL INSTRUMENTS

Shari'ah-compliant funds can be established, and fund certificates can be issued against them. Shares in syndicated finance can also be sold in the form of certificates. Generally, any Shari'ah-compliant investment can be securitized into credentials and traded, provided it does not involve interest or the sale of the present against future money.

RULES OF TRADING IN FINANCIAL MARKETS

The sale and purchase of financial instruments are subject to the same Shari'ah rules applied to the sale contract.

1. Each sale contract must have several pillars, the buyer, the seller, free will of both, the price, and the sold item. Most importantly, the sold item must be legitimate property, i.e., property considered lawful by Shari'ah. It means that the sale of liquor, tobacco, etc., would be void¹⁰⁰.
2. In a sale contract, you can postpone one of the two counter values (payment of price and delivery of goods), but not both. In other words, you can take delivery of goods and pay later, as in deferred payment sales. Alternatively, you can pay the price and get delivery later, as in Salam. However, to postpone both, as in futures contracts, is strictly prohibited.
3. Trading of risk is strictly prohibited. Sale contracts involving risk trading are called by Shari'ah scholars Gharar contracts. They are considered void. Examples in financial markets are derivatives, including puts, calls, swaps, etc.

APPENDIX TO CH. XVI: FINANCE CONTRACTS AND PRODUCTS

I. INVESTMENT AND FINANCIAL CONTRACTS

The following is a list of Islamic investment and finance contracts briefly described.

A. COMPREHENSIVE PARTNERSHIP

¹⁰⁰ Liquor is considered legitimate to own and trade by non-Muslims, unless their religion (according to their interpretation) prohibits that. For example, breaking a bottle of liquor possessed by a Muslim requires no compensation. However, if a Muslim breaks a bottle of liquor possessed by a Christian, compensation is enforceable.

1. **Musharaka** (partnership in profit, loss, and management)
 - 1.1. Equity finance entails;
 - 1.1.1. profit and loss sharing,
 - 1.1.2. sharing in management,
 - 1.1.3. free from information asymmetry,
 - 1.1.4. profit distributed in agreed proportion,
 - 1.1.5. loss is distributed in proportion to capital subscription,
2. **Musharaka Mutanaqessa** (diminishing partnership in profit, loss, and management)
 - 2.1. Same as Musharaka, except it is done for a specific period and extinguished gradually every year.

B. LIMITED PARTNERSHIP

3. **Mudaraba, Unrestricted** (unconditional limited partnership)
 - 3.1. It entails a share in profit and loss but not in management.
 - 3.2. Limited time horizon, after which it is liquidated,
 - 3.3. Suffers from information asymmetry,
 - 3.4. The investment agent (Mudareb) presents a feasibility study regarding the proposed investments, with an estimate of the indicative rate of return,
 - 3.5. Requires “limited partnership guidelines” that enforces the Mudareb (investment agent) to
 - 3.5.1. Present a feasibility study, estimating expecting returns,
 - 3.5.2. Hold regular bookkeeping,
 - 3.5.3. Present regular reports
 - 3.5.4. Channel all inflows and outflows through an account jointly controlled by the bank and the investment agent,
 - 3.5.5. Guidelines must be applied to place the burden of proof on the investment agent's shoulders (Mudareb) in negligence and breach of contract cases. In particular, when the rate of return falls below the indicative rate.
4. **Restricted Mudaraba** (conditional limited partnership)
 - 4.1. Limited equity investment
 - 4.2. Based on profit and loss sharing
 - 4.3. The investment agent is bound by explicit restrictions that could be related, among other things, to investment formulas, sectors, and geography,

- 4.4. It is subject to information asymmetry. However, guidelines may reduce the extent of the risks involved.
- 4.5. Require limited partnership guidelines,
5. **Unrestricted Mudaraba Mutanaqessa** (unrestricted diminishing limited partnership in profit and loss)
 - 5.1. Limited equity investment
 - 5.2. Based on profit and loss sharing
 - 5.3. The investment period is set from the very beginning.
 - 5.4. The total value of finance is extinguished gradually every year by transferring title from financier to investment agent
6. **Restricted Mudaraba Mutanaqessa** (restricted diminishing limited partnership in profit and loss)
 - 6.1. Limited equity investment
 - 6.2. Based on profit and loss sharing
 - 6.3. The investment period is set from the very beginning.
 - 6.4. The total value of finance is extinguished gradually every year by transferring title from financier to investment agent
 - 6.5. The contract sets conditions related to the type, subject, and other details of the investment
7. **Unrestricted Investment Wakala** (unrestricted investment agency)
 - 7.1. The investment expert submits a feasibility study regarding proposed investment activities, with an estimate of indicative returns
 - 7.2. A contract is signed by a fund owner and an investment expert.
 - 7.3. The investment agent gets a fixed fee for investment services. He/she can be offered a percentage of the profits over and above a specific hurdle rate as an incentive
 - 7.4. This contract is exposed to information asymmetry
 - 7.5. Guidelines must be applied to place the burden of proof on the shoulders of the investment agent in cases of negligence and breach of contract, and when the rate of return falls below the indicative rate
8. **Restricted Investment Wakala** (restricted investment agency)

C. PARTNERSHIP IN PRODUCT

9. **Muzara'a** (A joint agricultural venture, based on partnership in agricultural produce)

- 9.1. It is a form of partnership that is free from information asymmetry
- 9.2. One partner is a proprietor, and the other is a farmer
- 9.3. The proprietor provides arable land, and the farmer provides farming labor
- 9.4. Working capital (seeds, fertilizers, etc.) can be provided by either party or both in agreed proportions.
- 9.5. The product is also shared in an agreed proportion.
10. **Mugharassa** (partnership in jointly managed plantation fruit or lumber)
 - 10.1. One party is a proprietary who provides land.
 - 10.2. Another party is an expert in horticulture, who plants the land with fruit and lumber trees
 - 10.3. Inputs are shared between the two or provided by one party, as agreed.
 - 10.4. The planted land is divided between the original owner and the horticulture expert in agreed proportions.
11. **Mussaqa** (partnership in fruit and lumber in return for managing a plantation)
 - 11.1. One party is a proprietor that owns a plantation.
 - 11.2. Another party is an expert in horticulture
 - 11.3. The second party takes care of the trees until they bear fruit, through pruning, fertilizing, etc.,
 - 11.4. The fruit harvest is divided as agreed

D. SALE FINANCE

12. **Bai' Bethaman Ajel** (deferred payment sale)
 - 12.1. It is a sale contract,
 - 12.2. The delivery of commodities is done spot.
 - 12.3. The payment of the price is deferred.
 - 12.4. The deferred price is higher than the spot price to reflect time preference in the sold commodity.
13. **Murabaha** (cost-plus markup sale upon a promise to purchase)
 - 13.1. A sale contract on cost-plus markup
 - 13.2. The buyer signs a unilateral binding promise to purchase commodities stating the markup and payment terms
 - 13.3. The buyer usually pays a deposit or down payment as proof of seriousness

- 13.4. Retracting the promise makes the buyer liable for actual damage, which is equal to the difference between the purchase cost to the bank and the sale price to a third party
- 13.5. Not subject to information asymmetry
- 13.6. It can be used as a camouflage for a conventional loan, especially when the bank appoints the buyer as its agent to purchase commodities
- 14. **Ijarah Tashghiliyah** (operating lease)
 - 14.1. The bank owns or leases an asset from its owner
 - 14.2. The bank leases or subleases the asset to a customer.
 - 14.3. The customer makes regular rental payments that cover usufruct.
 - 14.4. The customer is responsible for regular maintenance, while the bank is responsible for major maintenance
 - 14.5. Destruction of the leased asset terminates the lease.
- 15. **Ijarah Muntahia Bettamleek** (financial Ijarah, where the title to the leased asset is gradually transferred in tranches to the lessee)
 - 15.1. The bank acquires an asset
 - 15.2. It leases the asset to a customer, based on operating lease, with a stipulation that the customer purchases part of the title to the property every period until the title is wholly transferred to the customer within a specific date
 - 15.3. Every period, the customer buys a prescribed part of the asset for an agreed price and pays for it
 - 15.4. A title is transferred in part every period, but the asset remains mortgaged to the bank until the final payment
 - 15.5. In case of default, the part-owned by the customer is sold to a third party for its market price. The lease of the remainder could be transferred to the new buyer
- 16. **Ijarah Tashghiliyah Fil Zimmah** (Forward Ijarah, where the asset to be leased would be constructed or manufactured and Ijarah Tashghiliyah or Muntahia Bettamleek would start once the asset is ready for use)
- 17. **Ijarah Muntahia Bettamleek Fil Zimmah** (Forward Ijarah, where the asset to be leased would be constructed or manufactured and Ijarah Tashghiliyah or Muntahia Bettamleek would start once the asset is ready for use)

- 17.1. The bank acquires an asset
 - 17.2. It leases the asset to a customer, based on operating lease, with a stipulation that the customer purchases part of the title to the property every period until the title is wholly transferred to the customer within a specific date
 - 17.3. Every period, the customer buys a prescribed part of the asset for an agreed price and pays for it.
 - 17.4. The title is transferred in part every period, but the asset remains mortgaged to the bank until the final payment.
 - 17.5. In case of default, the part-owned by the customer is sold to a third party for its market price. The lease of the remainder could be transferred to the new buyer.
18. **Ijarat Alkhadamat** (service Ijarah)
- 18.1. The bank contracts with service suppliers, like educational institutions, medical clinics, and travel agents on certain supplies of services to be made available to the bank for sale to its customers
 - 18.2. The bank provides the services to its customers at cost plus markup.
19. **Istisna'** (command to manufacture goods on specifications)
- 19.1. A customer commands the bank to manufacture an asset with a detailed list of specifications as a prelude to negotiating a price and terms of delivery. The price can be paid before, during, or after manufacturing
 - 19.2. Once the price and delivery terms are agreed, the bank approaches a manufacturer with an Istisna' subcontract
 - 19.3. Manufacturing is divided into stages. Each stage is verified through a consultant or the customer. Once a stage is confirmed, an agreed part of the price is disbursed by the bank
 - 19.4. After manufacturing is complete, the asset is handed down to the customer
 - 19.5. This mode is free from information asymmetry and could be used in project finance and conjunction with BOT contracts
20. **Salam** (deferred delivery sale, where the price is paid upfront)
- 20.1. A sale contract where the price is paid upfront and the commodity delivery is deferred

20.2. It is useful for financing agricultural produce when the farmer requires finance of cropping.

20.3. The mode is subject to information asymmetry, as money is given to the customer without further control from the bank's side

20.4. When a bank uses Salam as a finance mode, it must arrange for selling the commodities before they are received

II. CUSTOMERS DEPOSITS IN ISLAMIC BANKING

In addition to demand deposits, which are guaranteed but earn no return, Islamic banks also take savings and investment deposits. While the former can be augmented and withdrawn on short notice, the latter is provided for specific maturities. Investment deposits are either general or restricted. The former is grouped with bank equity in one pool and invested in several ways. Each earns a proportional share of the net profit of the pool. The latter are placed in specific investments chosen by respective depositors and earn a proportionate share of their investment profit.

In all cases, Islamic banks use the deposits they obtain to provide finance in the modes outlined above and get a proportion of the profit or a commission as a fee.

Islamic banks get a proportion of the profit in compensation for their efforts; the profit-sharing ratio between each bank and its depositors must be set at the outset. It is naturally determined by competition among banks, investment opportunities, and alternative investment outlets available outside banks. However, the actual rate of return eventually paid out on Investment deposits is not predetermined. It is closely linked to the real economy's performance, as finance modes are generally directed to finance trade in commodities and the actual production processes. It also depends on individual banks' performance concerning investment choice and management.

III. ISLAMIC NON-BANKING FINANCIAL INSTITUTIONS

There can be a variety of non-banking financial institutions that mobilize funds without taking deposits while using Islamic finance

modes to provide finance to entrepreneurs. They mobilize funds by selling stocks, mutual shares, and various instruments with a wide choice of risk-sharing and maturities.

Non-banking financial institutions have greater flexibility to deal with equity and partnership than banks, as they are not encumbered with guaranteed demand deposits. Therefore, the advantages of financing working capital requirements to enterprises holding equity can be more pronounced than in universal banking.

CHAPTER XVIII: HEDGING IN ISLAMIC FINANCE

Risk is the probable exposure to losses due to unexpected and unplanned incidents. Exposure is being vulnerable to pecuniary and non-pecuniary losses. Sometimes, risk means being exposed to events leading to probable losses known in advance and for which one is prepared to face. It would be a sort of calculated risk. Meanwhile, the risk may mean exposure to events leading to unexpected and unassessed losses so that no measures can be taken to confront them before they take place. Such would be an uncalculated risk. As risk is an inseparable part of business, businesses must resort to risk management, which entails taking the measures necessary to avoid or mitigate possible expected risks. Risk management includes risk analysis, measurement, assessment to identify how to mitigate or reduce risks, and to develop strategies for this purpose.

Hedging lay in the heart of finance. Consequently, it should be thought of as a finance topic. However, we have chosen to include Islamic finance economics in this book to provide a complete treatment of Islamic finance, taken from an economics perspective. Hedging is the prevention or protection from risks, i.e., shielding the wealth by protection from loss, diminishing, and damage.

In this chapter, we focus on hedging. Sometimes statements lacking verification and scientific support have been made from time to time to the effect that hedging is hardly possible within the system of Islamic finance. It chapter goes beyond providing a counter-argument to provide logical rationales for hedging against investment risks.

After establishing the justification of hedging, the chapter clarifies some basic concepts. One example is the difference between business risk and uncertainty. Another is the difference between capital protection and capital guarantee. A detailed analysis of risk mitigation tools and mechanisms is then provided. It includes the major contracts that are used for hedging, including the use of Takaful.

The chapter then moves to provide alternatives to derivatives that are customarily used for hedging but prohibited in Islamic finance. The forms of hedging in assets and currencies are detailed, including how to cover foreign exchange risks during the period preceding payment for the import values denominated in foreign currencies. Besides, hedging by

exchanging deposits and loads is explained. Finally, the chapter lists the liquidity-hedging instruments.

Therefore, it is clear that this chapter would be beneficial for Islamic finance practitioners who wish to hedge against the many risks they encounter daily. Consequently, it can be a part of a course in Islamic finance. Yet, it will become handy when we study macroeconomics in volume II, as we sometimes assume some hedging activities of the nature presented in this chapter.

In previous chapters, we have seen that debt and pure-risk trading have been banned in Islamic finance. Hedging has been predominantly dependent on these two types of transactions. It has left the impression that hedging cannot be possible under Shari'ah rules.

The need for hedging within Islamic banks and financial institutions stems from their commitment to adhere to the general objectives or Maqassad of Shari'ah, including protecting wealth. The management of Islamic banks and financial institutions is entrusted with shareholders and investment account holders' resources to invest and earn an acceptable return. Hedging would be necessary to protect such resources, and there is no way that such resources can be channeled into charity or non-return making placements. The administrators of these institutions realize that they receive, through the contracts of *Wakala* or *Mudaraba*, the funds of both the shareholders and the investment fund managers to make profits. Besides, the administration of funds is implemented on a trust basis. Therefore, fund managers cannot be held liable for the loss, if any, unless in the cases of misconduct, negligence, or breach of the investment agreement. However, if safeguarding funds is one of the fund managers' duties, the means to achieve this, which is through hedging, becomes a duty in itself. The basic concepts and definitions have been listed at the end of the chapter.

RISK AND UNCERTAINTY IN BUSINESS

There is a common misconception that Islamic investors, whether individuals or institutions have no hedging tools due to the Shari'ah prohibition of debt and pure risk trading. Contrary to such misconception, investors interested in the effective and efficient management of their risks will find various instruments and mechanisms that are Shari'ah-compliant. Mitigating risk through hedging requires *risk management*, which starts with investment risk analysis, intending to identify potential

risk types, investigate their sources, and estimate their magnitude. An appropriate approach would be chosen to mitigate risk to its minimum level possible based on risk analysis.

In general, hedging is permitted, provided that the related risks are not caused by the nature of the transactions. In other words, some transactions are risky by nature. Mitigating their risk would not be logical. For example, making a gamble is risky by nature. Such risk can only be eliminated by desisting from gambling.

Once the nature of the transaction does not cause risks, such risks can be eliminated or isolated from their related assets and eventually converted into financial products used for risk trading.

The presence of relative risks in business transactions is indispensable for these transactions' legitimacy. Business risk is therefore required for such business transactions to be acceptable. There are two related Fiqh maxims in this context. First, "profits and risk-taking are interdependent" (*al-kharaj bi-al-daman*). Therefore the one who bears the risk of loss associated with a transaction reaps its potential profits. The second is that profit accompanies the risk of loss" (*al-ghunm bi al-ghurm*). These two maxims establish one of the fundamental principles of Shari'ah in economic activities, namely that one must accept the risk of loss to earn legitimate profits.

Although all transactions involve such risks, they can be of varying degrees depending on the nature of their respective transaction or the contract. Some risks invalidate their associated transactions, like excessive uncertainty (*Gharar Fahish*), significant ambiguity (*Jahala Fahishah*), or interest (*Reba*). Now, we can move on to present an exhaustive list of risks.

RISK TYPES

I. CURRENCY OR EXCHANGE RATE RISKS:

Currency and exchange rate risks are associated with an investment in assets denominated in currencies that differ from the funds mobilized or used for investment. Foreign exchange risks are usually related to the value of revenues, costs, payables, and receivables from others upon their reception or delivery in foreign currencies during the repayment period. In debt-based monetary and financial regimes, currencies tend to strengthen with positive trade balances and capital and financial balances. The monetary and financial system can be restructured on an

investment basis, which would allow less exposure to currency weaknesses. However, given that the debt-based monetary and financial structure is the current status quo, with no possibility of change, we have to cope with the possibility of currency weaknesses and consequently be ready to cover exchange-rate risks.

II. RETURN RISKS

Companies working for profit consider their profit realization and dividend distribution a positive sign of success. Such companies' inability to distribute a competitive return to depositors would indicate the failure to achieve the expected returns on their investment. Such risk can be remedied by management upgrading and policy improvement, and profit stabilization reserves.

RISK TYPES AS TO THEIR SOURCE:

III. ASSET AND INVESTMENT RISKS

Asset and investment risks include the following:

1. Non-performing or low-performing assets

After being acquired, assets may defy expectations and become non-performing or low performing. Depending on their share in the investment portfolio, they may lead to a serious reduction in the enterprise's overall rate of return. The first step is to try to improve the performance of the assets. When assets are in the form of a company's subsidiary or a venture in which a bank is a shareholder, the decline in its return call for either troubleshooting to improve performance or total liquidation when improvements are not possible.

2. Assets that are difficult to liquidate when necessary

As a result of low- or non-performance, and in the cases where the improvement of efficiency is not possible, asset liquidation may be the only solution. When such a course of action is not possible, the market value of the asset can turn to be very low. The risk of a total loss on the asset value would become real and inevitable.

IV. CREDIT RISKS:

Business enterprises must do everything possible to match their payables with receivables. It would enable the enterprise to make all payments on due time without delay. The failure to match payables with receivables increases the probability of failure to fulfill financial

commitment on time. It can result in a delay in debt repayment in cases of (temporary) insolvency. A business enterprise must leave a comfortable margin when synchronizing between payables and receivables if some receivables fall with unexpected delays, leading to the inability to meet some payables on time. A reserve to fulfill obligations in such cases can help mitigate such risks.

V. MARKET RISKS

Market risks can result from price fluctuations, especially in deflation and inflation. Another type of market risk results from exchange rate fluctuations, especially when they are manifested in the assets traded in financial markets.

Market risks also arise from the loopholes left in contracts, leading to losses. Sometimes, they are associated with the characteristics of the contract, like information asymmetry between the bank and the client, in the cases of Mudaraba or investment agency. Besides, in sales or lease contracts, the assets leased or sold must be valid as securities to guarantee repayment. Otherwise, alternative arrangements must be made.

VI. MORAL HAZARDS RISK

When assets are invested on behalf of others in contracts involving information asymmetry between the bank and the finance user, the investment may suffer from the risk of moral hazard. The investment manager in Mudaraba and investment Wakala may take unduly high risk in investment, beyond what the asset owner would accept. It would be a common cause of moral hazard.

When the Mudareb or the investment agent risks the finance providers' assets contrary to their expectations, the trusted turn untrustworthy. It is more common in Mudaraba and investment agency contracts. Mitigation of this risk can be found through the use of restricted Mudaraba and setting particular guidelines to reduce information asymmetry, as will be explained below. Furthermore, Mudaraba can be safeguarded against information asymmetry by representing investment account holders in the boards of directors of Islamic banks in the proportion of their funds to the total funds managed by each bank.

VII. OPERATIONAL RISKS

Operational risks can result from inadequate or weak management. It fails to realize market-competitive profits. It is most serious when it leads to Shari'ah non-compliance risk, discouraging clients, ruining the institution's reputation, and spreading skepticism about the Islamic finance industry. It results from disregarding the Shari'ah rules, disobeying the Shari supervisory board's instructions, or the disregard of the Shari'ah board itself of the consensus of Shari'ah scholars as expressed by the International Fiqh Academy. It often leads to the invalidation of contracts and the disposal of the profit earned by channeling it to charity. Shari'ah governance plays an essential role as the primary cause of Shari'ah non-compliance. In particular, when Shari'ah boards lack the knowledge and expertise to identify the ultimate economic consequences of actions.

VIII. FINANCE RISKS

Business enterprises hold and sometimes issue financial instruments to place or to mobilize funds. Such instruments may include Sukuk, fund certificates, shares, and investment certificates. Each of such instruments can have its unique risk-return profile. Financial risks are caused by the failure to adopt the appropriate methods to measure the risk involved in each financing instrument and to take the necessary precautions to mitigate them.

IX. CAPITAL INVESTMENT RISKS:

Each investment involves placing capital in some risky business ventures. Capital investment risk results from the failure to adopt the proper strategies and to apply the right measures for risk management, appropriate assessment, and exiting from the investment when necessary.

X. CREDIT-RECEIVING RISKS:

Since investment account holders' representation in Islamic bank management is yet to be recognized, their preferences towards investments and their associated risks have been ignored. Credit-receiving risks refer to the risks of not laying down the proper foundations to identify the invested funds, their revenues, costs, and profits in a manner commensurate with the institution's shareholders' responsibility towards the investment account holders, given their total absence from the

decision-making process. Such risk is also called “movable risks” due to the need to support the profits of investment accounts. The representation of investment account holders in the banks’ management would avoid such risks altogether.

XI. ECONOMIC RISKS:

The currently dominant form of market capitalism is prone to crises due to the economic system itself, policy errors, and external shocks. Economic risks are associated with changes in the overall economic conditions surrounding domestic investment in locally placed foreign investment in another country. Examples are Exchange rate sudden and unexpected fluctuations, changes in legal and regulatory rules, and political upheavals. Their mitigation requires policies of multidimensional investment diversification. Reforming market capitalism along Islamic economics rules could go a long way in mitigating these risks.

XII. LEGAL RISKS:

The legal environment in which Islamic finance operates lacks many elements in different countries. Those practicing Islamic finance may find themselves surrounded by either non-enabling or even hostile legal environment. The risks emanating from legal changes narrowing or widening the scope of Islamic economic activities and changes in taxation are essential sources of legal risks. Reforming the legal environment to become more hospitable to Islamic finance goes a long way towards mitigating these risks.

AAOIFI AND IFSB HEDGING-RELATED STANDARDS:

The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) issued two hedging Shari’ah standards; No. (5) on “Guarantees” and No. (45) on “Capital and Investment Protection.” Furthermore, the Islamic Financial Services Board (IFSB) refers to its rules¹⁰¹ as Shari’ah-compliant hedging. An investment made into Islamic banks involves risk-taking. It is a simple application of the Shari’ah axioms of *al-ghunm bi al-ghurm* and *al-kharaj bi-al-daman*. Profits earned by Islamic banks are supposed to balance such risks.

¹⁰¹ In particular, par. 249 of the amended standard on “Capital Adequacy”

RISK MITIGATION OF ISLAMIC BANKS OPERATIONS

Entrusting Islamic banks with investment accounts and shareholding funds under the contracts of Mudaraba and Wakala is legitimate, per se. However, the legitimacy of profits accruing to such funds depends on Islamic banks' operations' legitimacy. Islamic banks involved in ruses, like 'Eina, Tawarruq, international Murabaha, as well as similar semi-conventional operations, render their accrued profits Shari'ah-impermissible. The acquisition and trading of their corporate shares and placing investment accounts with them would not be Shari'ah compliant.

Since the amount of investment accounts funds is usually a multiple of shareholding funds, the possibility of moral hazard in Islamic banks' investments is significant. Investment account holders must be represented on the boards of directors of Islamic banks in proportion to their funds. Such an arrangement would reduce the possibility of moral hazard in Islamic finance. It is especially important when Islamic banks decide to apply their paradigm honestly and without ruses. It would safeguard against taking too much risk with investment account holders' money and rationalize Islamic banks' operations.

REDUCING INFORMATION ASYMMETRY

Risk-taking must be associated with all Shari'ah-compliant investment, implying investors' liability for the total/partial loss or the depreciation in assets values. The use of Shari'ah-permissible measures to mitigate risks remains possible. Sale finance may include deferring one of the two contract counter values. Prices are usually deferred in Murabaha, Istisna', and Ijarah, often with deferred installments. Besides, when Mudaraba or Musharaka result in a profit, the Mudareb or Shareek may fail to deliver. When investment plans are impeded and financial flows blocked, the loss of capital due to delinquency and default on deferred payments can happen. The settlement failure of Mudaraba and Musharaka profits discourages partnership finance. On the other hand, the use of partnership finance can be made much safer when the following guidelines are observed to reduce information asymmetry:

1. Mudareb and Shareek must present a feasibility study that includes three scenarios: an optimistic, a moderate, and a pessimistic scenario. The principal-agent is bound with the figures and results of the moderate scenario. He/she must accept his responsibility for all related statistics and calculations. In case they are not materialized, the

burden of proof remains on the shoulders of the principal-agent that he did not commit negligence or breach of contract.

2. In cases of Musharaka through shareholding, the investor himself must carry out due diligence, including a feasibility study in the case of a new company or financial analysis in the case of an existing one.
3. Follow-up reports must be submitted monthly/quarterly by the principal-agent, to troubleshoot any problem in time. Provisions must be added to the finance contracts to deal with any discrepancies.
4. In the case of shareholding, the shareholder's administration must submit a follow-up report regarding shareholding's financial results to its management.
5. It is preferred in cases of Musharaka that the Musharaka share would be sufficiently large to permit participation in management through membership in the board of directors or any other equivalent role.
6. Islamic banks' investment departments must include officers with expertise in investment due-diligence, business management, and troubleshooting.

COLLATERAL CONTRACTS

Collateral contracts can protect creditors, including Kafalah, Rahn, and Hawala. These contracts commit the third party to discharge the debtor's obligation to pay the debt in case of delinquency or default. For example:

1. Kafalah adds the liability of one or more persons to the debt in addition to the original debtor. Therefore, Debt becomes payable by both the debtor and the Kafael.
2. Rahn or mortgage provides the creditor with a superior claim on an asset that is enforceable with priority over to all other ordinary creditors at the time when debt repayment becomes due.
3. Hawala transfers the debt settlement obligation from the insolvent debtor to another solvent creditor.

CAPITAL PROTECTION VERSUS CAPITAL GUARANTEE:

Capital protection involves specific measures to reduce the possibility of loss. However, such measures are not fail-proof. Criminals may be able to overcome measures to prevent theft and damage. Guarantees, absolute or conditions, regardless of the means and methods are taken by the guarantor or the guarantee seeker, can be arranged to avoid losses.

Shari'ah requires that investment managers (Mudaraba fund manager, Musharaka, or investment Wakala managing partner) use hedging to protect the funds they manage. Such managers guaranteeing their funds except under misconduct, negligence, or breach of contract is strictly prohibited.

HEDGING GUIDELINES

Hedging aims to distribute risk among partners in proportion to their capital shares. Hedging tools must be Shari'ah permissible.

The following must be observed when using Murabaha as a hedging instrument:

- the actual or constructive possession of the commodity must be the real purpose, target, and final result of each purchase or sale of commodities. In no case can fictitiously camouflaging other purposes should be allowed.
- Commodities sold must be in the actual or constructive possession of their seller in a way that makes actual delivery possible. Delivery must conclude each sale. The seller should never attempt to sell what is not in his/her actual or constructive possession.
- The purchase and subsequent sale of Murabaha commodities by finance providers and users must be handled directly and never through delegating a third party, including the original supplier.
- The buyer should not be the original commodities' supplier, nor should he/she own more than one-half of the commodities concerned. It is to avoid 'Eina.
- Future liabilities should not be incurred in currencies different from the investment currency to avoid exchange-rate risk.
- Multiple contracts used in hedging should not be associated or made contingent upon one another. Care must be taken to keep them independent. Contract independence ensures that each remains valid on its own. Dependent contracts, however, would all become void once one of them is found impermissible.
- The promising party that does not fulfill its promise shall be liable for all actual costs and losses incurred by the promised party, resulting from selling the asset to a third party for a lesser value.

HEDGING INSTRUMENTS & MECHANISMS

I. PERSONAL GUARANTEES

Personal guarantees can be offered through the following means:

1. To combining liabilities as in the case of Kafalah, letter of credit and documentary credit;
2. To transfer the obligation of debt payment to a third party, *Hawalat al-Dayn*.
3. To establish the right to demand debt payment to a third party that replaces the creditor, *Hawalat al-Haq*, with another.

II. IN-KIND GUARANTEES

In-kind guarantees take the following forms

1. *Rahn*,
2. holding assets sold for cash until the price is paid.
3. Mortgaging assets are sold for deferred payment until the price is ultimately settled. The mortgaged part of the asset declines by the value of successive payment settlements.

III. DOCUMENTARY GUARANTEES

It includes pledging debt securities and rights, such as

1. debt bonds,
2. checks,
3. promissory notes,
4. asset freezing
5. merchandise documents.

IV. INDEPENDENT GUARANTEES,

Independent guarantees include

1. securities provided by third parties,
2. Takaful against default
3. the creation of an **investment-risk reserve**.

V. CONTRACTUAL GUARANTEES

Contractual guarantees are exercised through triggering specific clauses in investment contracts, like

1. stipulating early settlement of debts before their maturity
2. the revocation of the contract in case of default/delay in payment of installments.

VI. COMPOUND MECHANISMS OF HEDGING

Such mechanism includes:

1. long-term Murabaha with multiple Murabahas. Its method serves to assure the seller and the purchaser of a long-run relationship to guarantee sale on the one hand and supply commodities on the other side.
2. Mutual promises to purchase or sell with different suppliers; examples of how to hedge against changes in income, prices, and exchange rates will be given below.

Its mechanism can be an alternative to conventional derivatives.

PROCEDURES AND CONTRACTS FOR RISK-HEDGING:

SPECIAL CONTRACTS AND PROCEDURES:

A. MORTGAGE:

A property (physical, monetary or financial assets) is provided as security against payments due to the creditor. In case of failure to repay, the creditor liquidates the property and deducts the debt from the sale value. The creditor's right has seniority over ordinary creditors; it extends to the debtor's mortgaged assets in possession of others. Examples include the Mortgage of durable physical assets (like real estates, means of transport, and durable equipment), financial instruments, and supporting merchandise documents. Mortgage rights can also be established over securities, promissory notes, other debt instruments, and cash balances in frozen accounts. The debtor's right to receiving profits can be kept separate or added as mortgage to the original amounts. Mortgage can also include preference rights to some permitted benefits, like the entitlements of the public treasury and creditor's right to receive sold objects when found in the property of the bankrupt debtor, as well as the liquidator and the official receiver's fees.

B. HOLDING THE SOLD OBJECT

When cash payment is instantly required in cases of spot sale, the seller can refrain from delivering the sold object until actual payment.

C. KAFALAH

Kafalah adds the debt to the liability of the Kafael or guarantor. Kafalah includes the right to recourse with or without the debtor's request or knowledge. Kafalah can be unrestricted but limited to the secured debt or restricted to a specific debt owed by the debtor to a third

party. Kafalah could be hierarchal when the creditor has to claim his debt from the debtor first and then from the guarantor. It can be non-hierarchal, by which the creditor can demand his debt from both.

D. HUWALAT AL-HAQ

Huwalat al-Haq is the transfer of the right to receive a debt from one creditor to another. It enables the creditor to settle his payment, using payable entitlements due to the debtor against others, such as salaries and compensations, and the Takaful compensations.

E. HUWALAT AL-DAIN

Huwalat al-dain is the transfer of a debt from one liability to another, commonly a more solvent person, to increase the chances of a favorable settlement.

VII. HEDGING CONTRACTUAL OPTIONS

A. KHIYAR AL-SHART

Khiyar Al-Shart is the right to terminate the contract within a specified period. It can be added to give one or more contract parties to terminate the contract under certain conditions and within a certain period.

B. KHIYAR AL-NAQD

An option that gives the seller the right to terminate the contract if the buyer fails to pay the price during a specified period set and agreed in the option.

C. KHIYAR OF URBUN SALE

When a down payment or Urbun is to be made, the right to cancel the contract within a certain period makes the down payment the seller's. Otherwise, the down payment remains a part of the price.

VIII. CONDITIONS AND UNDERTAKINGS:

A. REMAINING DEBT INSTALLMENTS BECOMING DUE:

Such a condition takes effect when one or more due installments are not paid. It usually sets a certain number of installments before a warning notification is triggered. The notification period's length is stipulated before the condition takes effect. Should overdue installments be settled, they should not carry any penalty for payment delay.

Furthermore, this condition can be strengthened by a Stipulation to revoke the contract if overdue installments are not paid within an agreed period. Such addition is the same as “*Khiyar alNaqd*” (cash option), which is usually provided by the law.

B. PENALTY CLAUSE:

A clause to stipulate penalty payment in cases of delivery delay can be added to all financial contracts except for debt-creating contracts. Examples include *Istisna'* supply contracts and labor-lease contracts. However, the delay caused by compelling or uncontrollable factors cannot be penalized. The sum of the penalty must be justifiable by the actual losses resulting from the delivery delay.

C. LETTER OF GUARANTEE:

At the beneficiary's request, a client may instruct his bank to issue a commitment to pay a certain sum of money within a certain period. The period may be extended upon the request of the client. Whether the extension request is granted or not, the bank remains liable to pay the full amount to the beneficiary as per the guarantee.

D. DOCUMENTARY CREDIT:

A client (buyer) may instruct his bank to commit to a beneficiary's (seller's) bank to pay a certain amount within a certain period. Such payment would be conditional on the delivery of documents representing the merchandise as instructed. When a documentary credit is issued in the context of international trade, e.g., importing goods from abroad, care must be taken in writing the letter of credit to include all the information necessary.

IX. DIRECT FORMS OF HEDGING

A. INVESTMENT-RISK RESERVE:

A part of the investment profit can be set aside as a risk reserve to cover the invested capital loss, and when sufficient, to cover any possible overall loss. Yield should be calculated exclusive of the investment manager's share, whether provided as a Mudareb profit-share or an investment-agent commission. The reason is that the investment manager, whether a Mudareb or Wakeel, should not guarantee the investment capital or profit, except in cases of negligence, contract breach.

The AAOIFI Accounting Standard no. (11) on “Provisions and Reserves” regulates this type of reserve.

B. THIRD-PARTY GUARANTEE

It is a guarantee provided by a third party as a donation, in Mudaraba and investment Wakala, to cover the losses suffered by a partner or a fund provider. It is merely a commitment to donate money to cover the loss if it takes place. An investment or a fund manager cannot provide such a guarantee. The guarantor has no right of recourse to the fund manager for repayment. Should the third-party guarantee turn ineffective, the beneficiary has no right to recourse to the investment or fund manager.

C. WHY WOULD A THIRD-PARTY VOLUNTEER A GUARANTEE?

A third-party guarantee must be provided gratis. It can happen only either as an act of charity or of government policy. When a waqf (public foundation) wishes to encourage a particular activity that lied within the waqf objectives. Examples include low-cost school lunches, homeless shelters, professional training for the unemployed, health services. In such cases, the waqf would be interested in promoting social benefit economic activities and would have resources to cover some of the losses incurred.

Governments may wish to encourage investment in a particular project for policy purposes. Such investment may not attract funds unless a specific rate of return is guaranteed. After reviewing the due diligence associated with the investment in question, the government steps in. Its guarantee would mean it is certifying that the claimed rate of return would be realized, thereby assuring investors to put forward their funds.

D. THE BURDEN OF PROOF & INVESTMENT MANAGERS

When the manager (the *Mudareb*, the managing partner, or the investment agent) claims that the damage or loss of the invested assets has happened for reasons beyond his/her control and the fund provider decides to reject such claim, the manager bears the burden of proof. The manager is then obliged to prove that the loss was not caused by negligence or breach of contract.

E. PROMISE TO PURCHASE MUDARABA ASSETS

The manager can promise to purchase the Mudaraba or the Wakala-investment assets only at fair value, the net value, or the market value. The fulfillment of such promise is conditional upon the assets remaining unchanged from their initial state at the time of the promise.

F. GUARANTEE AGAINST MISCONDUCT OR NEGLIGENCE

The investment contract can stipulate the liability of the fund manager for capital loss as well as the actual undistributed profits misconduct, negligence, or breach of the agreement is proved.

- When the assets placed in the Mudareb, fund, or investment manager's hands are destroyed or damaged, the manager's possession of the assets instantly changes from a trust-based to a liability-based possession. The manager becomes a usurper for not returning the *Mudaraba*, partnership, or agency-in-investment assets as stipulated in the contract.
- Liability for the asset value commences on the day when his possession has changed from trust to usurpation.
- When the manager's misconduct, negligence or misconduct, causes the damage, he/she must return their equivalent or their value, even if considerably higher,
- Capital growth due to business success and capital appreciation must be included in the value to be returned.

TAKAFUL

Invested assets can be insured through Takaful against attrition or damages.

ALTERNATIVES TO CONVENTIONAL HEDGING

I. DERIVATIVES AND ALTERNATIVES:

A. FUTURES ALTERNATIVES:

A fundamental principle in Shari'ah-compliant transactions is that only one of the counter values in a sale contract can be deferred. Deferment of both counter values, as in futures contracts, is disallowed as it involves Gharar. Their alternatives include:

- credit sale (Murabaha or Bai' Bethaman Ajel): merchandise delivered spot while the price is deferred. The deferred price would expectedly exceed the spot price. It can be used to hedge

against a possible decline in commodity prices for sellers and a potential increase in commodity prices for buyers.

- Salam and Istisna' sale is where the price is paid in advance, and the delivery of the well-described merchandise is deferred. Salam and Istisna's price would be lower than the price of spot goods. It is useful as a hedge against future price rises in commodities, as well as future rises in demand.

B. ALTERNATIVES TO OPTIONS

- Urbun sale: the buyer makes a down payment of the price in return for the right to cancel the deal within a certain period, in return for forfeiting the down payment. Such requests can be transferred to other parties only once. It can hedge against a future rise in prices for buyers and a future decline in prices for sellers.
- A sale with *Khiyar al-Shart*. The buyer or the seller, or both, reserve their right to cancel the deal during a specified period. It option is non-negotiable. It can be used to hedge against unfavorable price changes, whether up or down. When prices move in a favorable direction, *Khiyar al-Shart* can be activated.
- The binding commitment to sell by an asset owner and the binding promise to purchase by a potential buyer. Such commitment must be free of charge and non-negotiable. The commitment to sell can be used as a hedge against a price decline. The binding promise to purchase can be used against price rise.

C. SWAPS ALTERNATIVES: BILATERAL PROMISES

Bilateral self-binding promises are independent promises to purchase different commodities at different currencies. Examples that mimic the swap transactions include:

- One self-binding promise to purchase some goods on Murabaha basis and pay in *a particular currency*, and the other self-binding promise to buy goods *in a different currency*. The two promises can be used to hedge against exchange rate risk.
- A self-binding promise to buy goods at cost plus a *fixed* markup and the other self-promise to buy goods at cost plus a *variable* profit. The two self-binding promises can be used to hedge against income changes.

II. INDICES

A. UNLAWFUL USES OF INDICES

➤ uses of indices for trading

It is Shari'ah-impermissible to carry out sales and purchases based on the change in the values of indices available in the stock markets. Payments or receipts for the mere shift in index values are impermissible without actual trading of commodities.

➤ Options on indices or their multipliers

Contracts contingent upon the values of a certain index is unlawful.

Linking the value of monetary debts, at the time of the debt initiation, to some price index as a way of hedging against possible changes in the value of the debt-underlying currency is impermissible.

B. HOW TO MAKE USE OF INDICES

➤ Indices as a measure of change can be used to measure:

- the change of some values in a particular market, i. e., measuring tools.
- The performance of the professional fund and investment managers, by comparing the profits they achieve against the change in some indices for their evaluation.
- The performance of a portfolio and evaluate its regular risks instead of observing the performance and risks of each stock independently.

➤ Predictions and benchmarks, the index can be used as:

- a measure of the market trend and an indicator of its potential changes.
- A benchmark for investment funds and Sukuk,
- an indicator to determine the fund managers' incentive in a contract like an investment agency or Mudaraba.

➤ in the absence of a market-determined indicator that directly measures Islamic investment profitability, price indices can be used as benchmarks to determine¹⁰²:

- the profit rate in the Murabaha-based promise. Once the profit is set and stated in the contract of Murabaha, it cannot be changed

¹⁰² This is to be done when Islamic finance is applied in a conventional economic system. When the economic system is Islamic, there would be much better benchmarks.

- The ratio of the obligatory donation to a specified charity in case of default on repayment
- The part of the variable rent in Ijarah Muntahia Bettamleek contracts
- to restrict investment-managers actions (the Mudareb or the investment agent) so that if the agreed index reaches a certain level, the manager will have to sell the investment assets or buy a certain amount of goods at the market price market prices.
- As an onset condition for the execution of the binding promise to sell or buy an asset

ALTERNATIVES TO CONVENTIONAL INDICATORS

The use of interest rates (e.g., LIBOR) and conventional indices have been allowed on Islamic finance, based on necessity. Islamic finance has been practiced in a predominantly conventional environment devoid of Islamic investment indicators that can be used as benchmarks. It necessitated the use of conventional indicators instead. Therefore, Islamic finance can benefit from developing such indicators in two areas. First, some money- and financial-market instruments can be developed. Second, after setting some standards to distinguish Islamic from conventional financial instruments, indices can be built from such instruments and then used as benchmarks.

A. MONEY-MARKET INSTRUMENTS

The monetary authority can issue a central deposit certificate, CDC to be sold to banks and the public. Its proceeds can be used to establish investment accounts in all banks (or just Islamic banks), provided that they would be invested by each bank, using one or more of the twenty Islamic investment and finance contracts. The assets created through such investments would be like a Mudaraba pool, which would be tradable, as long as the investments are Shari'ah-compliant. Trading CDCs would produce a rate of return on economy-wide Islamic investments. Such a return rate can be used as a benchmark for Islamic investments. It is explained in another chapter how to use the RCDC as a monetary policy tool.

B. FINANCIAL-MARKET INSTRUMENTS

Standards can be set for shares in Shari'ah-compliant companies, Sukuk, and Shari'ah-compliant funds. It opens the door to establish Islamic investment indices for specialized and widely diversified indices. The rate of return on such indices can be used as benchmarks for Islamic investment.

C. ISLAMIC INDICES PROPERTIES

The use of currently available indices in Islamic finance has been motivated by Islamic investment indices. We can, therefore, recommend the construction of such indices while observing the following guidelines:

- The index should reflect the projected results of the Islamic investments at different maturities.
- All Shari'ah and technical requirements regarding components and usages must be observed.
- The index must reflect the performance of genuinely Shari'ah-compliant investments, excluding those evolved through ruses, like Tawarruq, international Murabaha, debt sale, and the like.

FORMS OF CURRENCY HEDGING

I. USE OF COMMODITY TRADING

1. To extinguish debts by actual repayment or through a swap. It removes the need to hedge.
2. Murat, a Turkish investor, must make a payment in US dollars, which is due in, e.g., three months. He wants to be covered against exchange rate risk. Murat purchases merchandise in local currency on three months deferred payment from A. He obtains a promise to purchase the same merchandise in dollars on Murabaha from B to be paid in three months.
3. Meanwhile, care is taken to set the number of dollars to be received in three months equal to the debt value.
4. Suppose Murat commits to receive a future payment in Turkish liras in three months and wants to cover against the exchange rate risk. Murat can purchase a commodity for Turkish liras at a deferred price to be paid in three months. Care would be taken to set the number of Turkish liras to be paid in three months equal to the amount to be received,

II. OTHER FORMS OF CURRENCY HEDGING:

Trading commodities in different currencies can be used in mitigating exchange-rate risks. It has been made evident by the previous examples. International and domestic trade deals can be arranged to cover such risks. Offsetting deals can also be set to increase the effectiveness of risk coverage.

III. COVERAGE DURING A GRACE PERIOD

- Suppose a Turkish bank has issued a letter of credit that obliges it to pay \$1 million in six months to the exporter's bank in a foreign country. To cover its exchange rate risk between the dollar and the Turkish lira, it can sell the same merchandise on Salam to a domestic customer against cash payment, then use the Turkish lira proceeds to purchase dollars and invest them for six months.
- The bank purchases a commodity for a deferred dollar price, payable in six months. It can sell the same merchandise in the local currency, Turkish lira, to its Murabaha customer. In quoting the Murabaha price, the bank may include the possible increase in the dollar exchange rate in the Murabaha cost.
- Another alternative is to sell the merchandise spot and use the proceeds to buy merchandise and then sell it in dollars, based on Murabaha and payable in 6 months.
- Another alternative is that the bank obtains a unilateral binding promise to buy Turkish liras for US dollars in quantity required after six months at a specific exchange rate determined in the pledge. When the payment time comes, the bank concludes the exchange contract with the promisor through a spot exchange in the two currencies. The promisor may have made the promise to sell the dollar amount that he/she is expected to receive in six months, intending to cover the exchange rate risk.
- The bank may buy a particular commodity in Turkish lira from a specific party. It possesses the commodity physically or constructively and sells it at a deferred price in dollars, for the same term of the first sale. It delivers it to its buyer so that the latter can physically or constructively possess it. The bank may repeat this transaction whenever it has certain currencies and needs another currency. So long as buying this currency at its payment due date exposes the bank to the risk of exchange rate appreciation.

IV. EXCHANGE OF DEPOSITS AND LOANS

- The bank that is required to pay a sum in dollars in the future can buy the needed sum and deposits it with another bank for six months. In return, the other bank makes a parallel deposit of an equivalent amount of liras. Each bank invests the deposit with which it is entrusted. After six months, the bank takes back its dollar deposit and uses it for payment without being exposed to exchange rate risk.
- The bank may ask the client to conclude a Murabaha deal in the same currency used by the bank to purchase the commodity on credit from its supplier. It would render the coverage of the exchange rate risk unnecessary.
- Alternatively, the bank may increase the Murabaha price (cost plus markup) by a margin covering the possible appreciation in the bank's currency payable to the supplier.
- Should the client refuse to conclude the Murabaha deal in the same currency or accept a higher profit margin, the bank, in this case, may now buy the currency payable later to the supplier and invest it until its payment due date.
- The bank has purchased a commodity on credit in a foreign currency to sell it to its Murabaha client in local currency. It may agree with the client to consider while determining the Murabaha profit the possible change in the exchange rate and choose the profit margin given the two currencies' overall exchange rate average. In this case, the bank will not have to engage in any future currency exchange to protect its position.

V. USING SALAM FOR LIQUIDITY HEDGING:

- Salam enables the seller to set the price in advance and deliver the goods in the future.
- Leasing assets on a forward-lease basis and receive the rentals upfront.
- Forming a portfolio whose tangible assets satisfy a dominance ratio of the total assets, the rest being Istisna' and Murabaha debts, so its units can be sold to obtain liquidity.

CHAPTER XIX: THE ECONOMICS OF ISLAMIC FINANCE

This chapter about the economics of Islamic finance tries to give a direct answer to a question that many Muslims think it should not be asked in the beginning. After all, Islamic finance rules have been stated in the sacred text unequivocally. There is no way that they can be interpreted differently. While we admit that our Creator's obedience is mandatory, He also mandated that we use our intellect. It is a religious duty that can be exercised to know how and why.

The chapter makes a simple but concise survey of what we have learned in mainstream economics related to Islamic finance. Then it concludes the justification of this system that appears to be radically different from conventional finance.

We must assume that Islamic finance is appropriately applied in an economic system to understand it in the proper context. Such an assumption runs contrary to the current experience where Islamic finance is practiced in a conventional economic system. The chapter summarizes an Islamic economic model developed by the author in the early eighties for this purpose.

When scrutinized in this context, Islamic finance was found to have precious advantages that set it far apart from conventional finance. It even makes Islamic finance a candidate for a reform plan to the international economic order.

Policy recommendations are quite serious and require special attention. Besides, since Islamic banks are supposed to operate as a universal bank, an appendix about universal banking issues has been appended to the chapter.

There is one question whose answer is postponed to the next volume of the book. It is well known that Islamic finance has not been appropriately applied in most countries. It cannot be explained against the many significant advantages of Islamic finance found in this chapter. The reasons for misapplication will be placed in a chapter when the regulation and supervision of Islamic finance are discussed in the following volume.

INTRODUCTION

Conventional finance, based on the classical loan contract, has been practiced in the ancient world for centuries. It has been institutionalized

in banks only in the seventeenth century as we know it today. Meanwhile, interest-free Islamic finance has started with Islam's dawn, based on several investment and finance contracts. Yet, despite its continued application, it has not taken the form of banking until 1975 (Chachi, 2005). The long experience with conventional finance and its wider-ranging prevalence raises questions regarding Islamic finance's economic rationale.

Islamic jurisprudence offers little in this regard beyond the concept of justice underlying interest prohibition. There is a need to present Islamic finance as a choice or alternative to conventional finance economics. Such a need becomes more evident as Islamic finance involves higher contractual and transaction costs. Instead of using one standardized contract, as the classical loan contract, it uses up to twenty contracts with the possibility of mixing and matching in some financing transactions.

It chapter uses results drawn from price, monetary, banking, and finance theories to compare both conventional and Islamic finance to ascertain whether the latter has substantial advantages for the single bank and the macroeconomy to justify its use. The chapter lists certain economic advantages that make Islamic finance a better choice. However, this does not mean that Islamic finance will automatically become the choice of banks and financial institutions. First, individual banks cannot capture its advantages, as they are mostly external to the individual decision-making units. Without ways to internalize such external effects, banks will find little incentives to seek macroeconomic benefits that bear only indirectly on their financial statements. Second, policymakers must be sufficiently convinced of the existence of such advantages before sanctioning the use of Islamic finance. The regulation and supervision of Islamic finance are more involved than its counterpart. Regulators must watch out for certain peculiarities to effectively regulate Islamic finance.

Using a hybrid banking system, where both Islamic and conventional finance are allowed to compete freely, is one solution. However, we point out a few hurdles that must be surmounted.

Finally, the chapter lists some policy recommendations for the monetary authorities and financial regulators to benefit from Islamic finance.

This chapter starts with the details of what we can learn from monetary, banking, and finance theories related to Islamic finance. Some of these theories do not use the appropriate set up for studying money. We

are therefore careful to ignore some of their wanting results. The second section lists Islamic finance's advantages based on these theories. The third section discusses the problems associated with a mixed banking and finance system and how they can be surmounted. The last section draws policy recommendations.

The chapter builds on the authors' earlier contributions on the subject, particularly, Al-Jarhi 1981 and 2004.

WHAT WE CAN LEARN FROM ECONOMIC ANALYSIS

A. THE RATE OF INTEREST

Islamic finance starts with one fundamental concept: to avoid trading present for future money. Finance is provided in the form of money in return for equity or rights to share proportionately in future business profits. Finance is also offered as commodities delivered in return for commitments to repay their value at a future date. It is further provided against a commitment to deliver or manufacture commodities.

Can we find anything in economics that justify apprehensions about trading present against future money at a premium, which is the rate of interest?

Until the middle of the twentieth century, it seemed to everyone that no wrong could be found with the system of market capitalism. However, in search of optimal monetary policies, economists stumbled on the relationship between the rate of interest rate and the optimality of resource allocation. Monetary economists found that a zero nominal interest rate is a necessary condition for the optimal allocation of resources (Samuelson, 1958; Friedman, 1969)¹⁰³.

The reason is simple. In a world of fiat money, adding one marginal unit of real balances costs no real resources to the community. Therefore, imposing a positive price on the use of money would lead traders to economize on the use of money in transactions in their pursuit to minimize their transaction costs¹⁰⁴. However, when the rate of interest is zero,

¹⁰³ Paul Samuelson (1958) reached a similar conclusion earlier than Friedman, using a consumption-loan model.

¹⁰⁴ If a supermarket were faced with an increase in interest rates, it would attempt to collect cash faster from its tellers and rush it more often to the bank, using more labor (people who collect cash as well as security guards) and capital (armored cars). Obviously, the withdrawal of real resources from production into transactions reduces total output and efficiency (Al-Jarhi, 2016).

traders will have no incentive to substitute real resources for money. Additional real resources can, therefore, be directed to consumption and investment.

It has also been found in general equilibrium models that a zero-interest rate is both necessary and sufficient for allocative efficiency (Cole and Kocherlakota, 1998; Wilson, 1979). These theoretical results are dependent on some simplifying assumptions. Yet, they are robust in a variety of models (Correia and Teles, 1997).

Milton Friedman proposed his rule to reach an optimum quantity of money, to deflate the economy at a rate that brings interest down to zero. In other words, the Friedman rule suggests steadily contracting the money supply at a rate equal to the representative household time preference (Friedman, 1969, p. 34; Ireland, 2000).

Such a policy rule implies that the optimal rate of inflation is negative. However, Central bankers would never seriously advocate a long-run deflation policy (Wolman, 1997).

One problem with such a policy is the liquidity trap when the interest rate is zero (Uhlig, 2000). Some economists indicate that deflationary needs only to be exercised to apply Friedman's Rule (Cole and Kocherlakota, 1998). Even if the asymptotic conditions are not fulfilled, short-term constraints on monetary policy can do the job (Ireland, 2000). Another problem is that when the rate of interest becomes very low, monetary authorities have less leeway with adjusting it downwards in the face of recession. Some economists propose alternative ways to overcome the zero-bound interest rates (Goodfriend, 2000). Still, such a problem appeared to be more challenging than previously thought few years after the onset of the International Financial Crisis of 2007/2012. Another problem is that deflation has efficiency problems parallel to inflation, even at very low-interest rates (Lucas, 1994). However, the welfare cost of implementing a zero rate of interest is claimed to be negligible (Wolman, 1997).

Many economists appear convinced that practical and conceptual problems involving zero interest rates are surmountable. Nonetheless, monetary authorities are not yet impressed. So far, no monetary authority has come forward to adopt the optimal monetary policy rule¹⁰⁵.

¹⁰⁵ Economists also recommended the application of 100 percent required reserve ratio. However, policy-makers have not been impressed, despite the obvious benefits.

B. RISK-SHARING AND MARKET STRUCTURE

Risk sharing is an essential feature of the Islamic economic system. In the financial sector, households provide their funds to Islamic banks and financial institutions on a profit-and-loss sharing, PLS, basis. Islamic banks and financial institutions supply funds to their users partly on PLS and partly on a sale-finance basis. Islamic finance is sometimes likened to a participatory sport in contrast to conventional finance, which is likened to spectators' sport (Al-Jarhi, 2004).

It would be an interesting proposition to test whether the relative predominance of risk-sharing in an economy increases its efficiency. Despite difficulties, Kalemlı-Ozcan et al., (1999) have developed an interesting scheme to fulfill the same purpose.

They find a positive and significant relationship between the degree of specialization of individual members of a group of countries, provinces, states, prefectures, and the amount of risk shared within the group. Their regressions confirm that risk-sharing *facilitated by a favorable legal environment* and a *developed financial system* is a direct causal determinant of industrial specialization.

Therefore, risk-sharing furthers specialization, thereby raising the efficiency of the economy as a whole. In Islamic economic systems, risk-sharing goes beyond the capital market's mere integration. It should be more prevalent through the financial market structure, producing more specialization and greater overall efficiency.

The conventional finance sector is almost void of risk-sharing. Fund owners provide their financial resources based on the classical lending contract on the resource-mobilization side. Accordingly, banks taking deposits would guarantee both principal and interest on their customers' deposits. On the resource use side, conventional banks provide finance on the same basis. Banks would not enter into risk-sharing arrangements with entrepreneurs. Instead, they take risks only on collateral and not on entrepreneurial activities. Generally, banks do limited monitoring of their borrowers to minimize default risks.

Similarly, in the bond market, bond issuers guarantee principal and interest payment, while bondholders do not share in the business risk of bond issuers. Bondholders meanwhile do not monitor bond issuers. Trading bonds in an open market provides information collected and analyzed by bondholders. Monitoring a particular bond's market appears to be less expensive than monitoring borrowers by banks. That is why

bondholders are willing to accept lower interest rates than banks. Consequently, Corporate bonds as a share of total credit market instruments averaged 58 percent between 2013, compared to 10 percent to bank loans in the US (Contessi et al., 2013).

Therefore, we can conclude that most of the financing in conventional economies is conducted in the financial sector's unmonitored section, namely the bond market. However, banks still provide some resources.

Risk sharing is found only in the stock market, where shareholders presumably share the firm's profit and loss whose stock they hold.

C. BANKING AND FINANCE THEORIES, INFORMATION ASYMMETRY & THE LEMON PROBLEM

According to banking theory, those who obtain debt finance (finance users) are better informed about the use of funds they obtain than finance providers. Therefore, debt finance can be riddled by information asymmetry leading to default. In parallel, equity finance providers can be exposed to investing in a losing venture. Equity finance, therefore, may be riddled by losses.

In such a world, an entrepreneur who is more informed than the supplier of funds would use internally available funds to invest in the firm. He would also prefer to use debt finance when more funds are required (Razin et al., 1998). The reason is that using equity finance would be interpreted as a belief that the stocks of the firm are overvalued. It remains to show how investors handle the lemon problem or the risk of loss in equity finance and how the fund provider handles information asymmetry.

Usually, information asymmetry in debt finance is reduced through monitoring. However, complete monitoring of fund users would be extremely costly. To do any effective monitoring, banks will have to raise the lending rates of interest to cover the extra monitoring costs. Handling the lemon problem is much easier by conducting and reviewing feasibility studies.

Since debt and equity finance has its problem, the former has the information asymmetry problem, and the latter the lemon problem, the relative use of each will depend on the relative ease each of the two related problems can be attenuated.

Two tools can be used to handle the lemon problem of equity finance. The first is feasibility studies for new projects or financial analysis for ex-

isting firms. The second is governance. In particular, the second tool has been used by universal banks¹⁰⁶ as they take equity in companies to influence their governance and ensure their profitability. Information asymmetry can be handled through extensive monitoring, which could be rather costly. Universal banks have used an innovative and less expensive approach to take equity in a company and provide it with debt finance. In this manner, universal banks simultaneously solve lemon and information asymmetry problems.

We can now turn to some issues raised concerning universal banking. The starting point is that universal banking eliminates information asymmetry and the associated risks of adverse selection and moral hazard.

Adverse selection can be avoided by careful screening of finance applicants. When a bank provides equity and debt finance simultaneously, it will have more access to information than when only debt finance is provided. Therefore, we can conclude that screening would be more effective and adverse selection less probable with universal banking.

Reducing the possibilities of moral hazard requires monitoring the firm that obtains finance. All three ex-ante, interim, and ex-post monitoring must be exercised to be effective (Aoki, 2013). Equity finance provides the bank with access to information necessary to practice monitoring at all intervals. That explains why the research of Dewenter and Hess (1997) supports the idea that relationship (universal) banks are more effective monitors than transactional (commercial) banks.

Equity finance also reduces firm incentives to substitute riskier for safer assets. Meanwhile, debt finance would reduce firm incentives to hide its profits. Furthermore, when the firm faces problems, the bank will help protect its investment as an equity holder.

In summary, banking theory indicates that universal banking would be exposed to lower moral hazard levels and adverse selection. Besides, by sitting on the firms' board of directors, banks could influence corporate governance in the whole productive sector, leading to economic performance improvements.

¹⁰⁶ Universal banks are defined as "large-scale banks that operate extensive networks of branches, provide many different services, hold several claims on firms (including equity and debt), and participate directly in the corporate governance of the firms that rely on the banks as sources of funding or as securities underwriters," (Calomiris, 2000).

Empirically, it has been found that using a combination of debt and equity finance by banks seems to carry several advantages to both banks and firms, confirming theoretical findings. The banking theory would indicate that banks would be relatively more exposed to adverse selection during economic upturns and moral hazard during downturns. Applied research has found that universal banks face lower risk than commercial banks during upturns and downturns. Besides, the risk differential between universal and commercial banks gets broader and more significant during downturns (Dewenter and Hess, 1997)¹⁰⁷.

TRANSACTIONS CLASSIFICATION

Another contribution in price and monetary theories is the distinction between nominal, real, and semi-real transactions (Al-Jarhi, 2002). Nominal transactions have two nominal (monetary) counter values. One example of a nominal transaction is when spot money is traded against future money. Another example is when a gamble price is paid as present money against the gamble's payoff, which is usually paid in the future, as in the case of derivatives. When both counter values are deferred, market authorities set safeguards to ensure that both parties to the gamble will pay their obligations. Whether nominal transactions are carried out in an organized financial market or a gambling casino, their ultimate results are distributional between gambling parties.

The macroeconomic effects of nominal transactions take two forms. In the first form, the growth in nominal transactions volume will encourage investments in the gambling industries and associated services. More investment would also be directed to accounting, clearing mechanisms, strategic trading mechanisms, and enforcement mechanisms usually associated with this type of transactions in the financial markets.

The redistribution of wealth would affect the consumption pattern in the economy and motivate the reallocation of resources that caters to the tastes and preferences of the social group that gains wealth against the rest of the society.

The critical result is that trading present for future money is always done through nominal transactions. Whether a debt instrument or a risk associated with some gamble is traded in the financial market, the related transaction has two nominal counter values, one on each side.

¹⁰⁷ For an exposition of the main issues regarding universal banking, see Appendix II

Real transactions have only one nominal or monetary counter value, while the other is always a commodity. Such transactions provide essential indicators for the allocation of resources. When the rate of monetary expansion increases, more money is available for spending either directly or through the increase in finance availability. Spending would increase on commodities as well as on debt and risk trading.

An increase in spending on commodities is done through real transactions, which become the chariot of the transmission mechanism from the changes in money supply to commodity markets directly. The more spending increases go through real commodities, the faster commodity markets respond with new prices and quantities that serve as signals to producers to adjust their output. However, the more spending is directed to debt and risk trading, the greater the leakages as spending on commodities would await the conduct of financial market games and the resulting payoffs. Those gaining wealth would, after some delay, increase their commodity purchases by carrying out more real transactions. Such uncertainty and leakages to nominal transactions slow the speeds of commodity markets' adjustments.

Therefore, the effect of policy actions leading to an increase in monetary expansion on commodity markets would depend on how much of the money supply rise goes into nominal versus real transactions.

Semi real transactions can be defined as exchanging one currency for another currency, where both counter values are paid. Trading currencies against each other, where one or both counter values is deferred, would be considered a nominal transaction. Spot trading of currencies would be to pay for commodities across the borders. They, therefore, have the same effects as real transactions. Meanwhile, currency trading with deferred payments would be for debt or risk trading.

A CONCISE ISLAMIC ECONOMICS MODEL

I. GENERAL FEATURES

Reba's prohibition entails an institutional structure that remains based on the market mechanism but has features that replace interest-based finance with interest-free finance. The institutional structure should be sufficiently comprehensive to encompass money creation and allocation, as well as monetary and fiscal policies (Al-Jarhi, 1981)

II. ISSUING MONEY AND ALLOCATION OF FINANCE

Drawing from Al-Jarhi, 1981, the Islamic monetary system will have a central bank and member banks. Money is issued in the form of central bank investment deposits, CDs with banks, placed based on profit and loss sharing, PLS. the return on CDs will flow back to the central bank as seigniorage for the government's budget ultimate benefit.

Furthermore, we want to do away with a well-guarded monetary tool to fulfill the Islamic economic rule that wealth redistribution must be justifiable. It would also provide the central bank with full, exclusive, and direct control over the money supply. Moreover, it would avoid using monetary policy tools to lead to drastic changes in the money supply. All these goals can be reached by replacing the fractional reserve system with total reserves.

The central bank would issue a new money-market instrument. Its proceeds would be added to the central deposits. It is called central deposit certificates or CDCs. Such an instrument would be negotiable in a secondary market and available to banks and the public for investment.

Like the central bank, the public places their fund in investment accounts based on PLS. the public can also hold CDCs. Furthermore, they can place demand deposits with banks used for transactions services and earn no return. On the fund-use side, people can finance their activities based on one of sixteen contracts listed in Appendix I.

What happens to the government budget deficit? First, the government finances its income-generating activities through banks. Even infrastructure projects can be made income-generating to attract finance on market terms. Second, citizens could be encouraged to establish Awqaf or public foundations to provide public services, especially education and health¹⁰⁸. To the extent such Awqaf are encouraged, the government will limit its activities to set standards for education and health services.

Redistribution in favor of the poor is done outside the market mechanism, through the collection of Zakah. Banks become custodians and authorized to use the proceeds to finance micro-projects whose titles are transferred to the poor to make them self-employed and self-sufficient.

¹⁰⁸ Private foundations are considered to be perpetual after-life charity, that earn rewards from God while their founders are dead. That is why Muslims have been keen to establish them. In the past, most of health and education services were provided through private foundations.

There will be no integrated debt market, nor will risk trading be allowed. The central bank, having an exclusive power to control the money supply, can gauge the

monetary expansion rate to the rate of growth to target absolute price stability.

EFFICIENCY OF ISLAMIC FINANCE

I. MACROECONOMIC EFFICIENCY

A. EFFICIENCY AND ECONOMIZING ON CASH IN TRANSITIONS

At the macroeconomic level, Islamic finance avoids the use of interest-based lending. The rate of interest is replaced by the rate of profit on partnership and PLS finance, markups on credit-purchase finance, and rental rates on leasing finance¹⁰⁹. They reflect the time-value of commodities.

The Friedman optimal monetary policy rule (to deflate the economy at a rate equal to the real rate of interest) is to prevent agents from substituting real resources for money in transactions, as this would reduce total output below the optimum level. Those who deposit their money in banks do so in the form of *saving and investment accounts* based on PLS. In this case, the rate of return would be uncertain. Neither the principal nor the return on such accounts or deposits is guaranteed. There would be no incentive to reduce the use of cash in transactions to gain more income with certainty, as in the classical loan contract.

B. EFFICIENCY & FINANCIAL RESOURCE ALLOCATION

Conventional finance allocates financial resources with paramount regard for borrower's ability to repay loans, both principal and interest. In the modes of Islamic finance based on equity and PLS, the focus would be on the profitability and return of the concerned investment. Its type of finance can direct financial resources to the most productive investments. It would increase the efficiency of the financing process and reinforce efficiency in the real sectors.

We assume that Islamic finance modes based on commodity acquisition are used in an open-access market with sufficient competition among fund users. Unlike the rate of interest, which is an administered

¹⁰⁹ Such rates of return must be somehow related. They are all market determined and should not be subject to price-setting by policymakers.

price that reflects policymakers' views, the finance cost ¹¹⁰ is market-determined. The open market accessibility is sufficient to allow for competitive price search. Fund users will shop around banks for the best finance terms. Banks would negotiate with customers their markups. The market would produce markups that reflect customers' and banks' time preferences and the relative importance (value in use) of financed commodities. Resource allocation would again be optimal. No finance would be provided for debt or risk trading¹¹¹.

STABILITY

On the one hand, a conventional bank has liabilities that include demand, time, and saving deposits, which the bank guarantees. On the other hand, it has assets that are mostly composed of debt instruments, each of which has a quality that depends on the corresponding debtor's ability to repay. If it happens in a significant proportion, default on the asset side will imply the inability to meet the bank's obligations on the liability side. Such default can be expected at times of crisis, be it of macroeconomic nature or caused by circumstances specific to the bank. One bank's insolvency could cause a bank-run, threatening the whole banking system.

According to Islamic rules of finance, a bank operating has liabilities of different nature. Only demand deposits are guaranteed. Meanwhile, saving and investment deposits are placed on a PLS basis. When a bank faces macroeconomic or bank-specific crises, investment depositors automatically share investment and default risk on the asset side. The bank is less likely to fall, and a bank run is less probable. Therefore, it can be said that an Islamic banking system is relatively more stable compared to conventional banking (Khan, 1986).

There is an integrated debt market in conventional finance that has grown immensely in size and scale of integration. As lately manifested in the International Financial Crisis (2008-2012), many experiences have shown that integrated debt markets are sources of both domestic financial instability and contagion. Some economists have come forward with proposals to place restrictions on capital movements. It would be contra-

¹¹⁰ Markup rates and rental rates.

¹¹¹ Let us remember that we have already argued for the missing link between the rate of interest and the rates of time preference.

ry to what has been considered in economics as the received neoclassical doctrine.

In contrast, debt is created in Islamic finance by selling commodities on credit. Resulting debt instruments are negotiable only at face value. There is a credit market for each commodity in which the demand and supply *to buy it on credit* determines a *mark-up rate*¹¹² for it, resulting in fully segmented credit markets¹¹³. The absence of sudden and mass movements of funds and risk trading rules out instability and contagion.

We have noted above that Islamic finance never provides present money for future money. All Islamic finance modes involve money on the one end and commodities¹¹⁴. Monetary flows through Islamic financial modes are directly tied up with commodity flows. In other words, Islamic finance removes the dichotomy between financial and real activities. It leaves no room for excessive credit expansion, as each finance extended is automatically earmarked for specific uses.

Changes in the supply of money by policymakers would automatically be translated into changes in excess demands and supplies of commodities, causing quantities of output produced to respond more quickly to market forces. In other words, markets are more likely to operate efficiently and smoothly. Therefore, it is interesting to note that Islamic finance, though being non-conventional, supports market forces and mechanisms more than conventional finance.

INFORMATION ASYMMETRY

Assuming no regulatory hindrances, Islamic banks, like universal banks, can carry out both investment and commercial banking activities. Therefore, Islamic banks would be allowed to provide finance through a combination of modes, enabling them to mix contracts free from information asymmetry with others suffering from it. Like universal banks, Is-

¹¹² The mark-up rate is the difference between the spot price and the deferred price as a percentage of the spot price.

¹¹³ At maturity both countervalues, *viz.*, debt and its nominal value would be spot and equal in amount, thereby fulfilling the necessary conditions for trading money in Islam. Meanwhile, debt can be swapped against tangible goods or services (according to Imam Malik and Ibn Taymiah, but not for cash).

¹¹⁴ It meaning includes all sale finance. Partnership and investment agency finance can be considered as money advanced for shares in future income resulting from commodity-related activities.

lamic banks can hold equity in the firms they finance. In this respect, they bear a resemblance to universal banks. They can be thought to handle the problems of moral hazard and adverse selection better than conventional (commercial) banks (Al-Jarhi. 2003).

FINANCE AND DEVELOPMENT

A. OPERATING AS UNIVERSAL BANKS

Some economists believe that universal banking that combines all finance phases can be credited to industrial development and economic growth in Germany and Japan. Universal banking has yielded economies of scope and greater efficiency, providing more finance at lower costs, thereby promoting industrial investment ¹¹⁵. In particular, German banks have been perceived to maintain close, long-term relationships with industrial firms, which influenced banks' attitudes towards multi-period optimization (Fohlin, 1998). Its opinion is supported by Terrin (1998) but opposed by Fohlin (1998) as well as Miwa and Ramseyer (2000).

The ability to act like universal banking by Islamic banks put their financing activities right in the center of the development process. In this case, Bankers become both partners and financiers of entrepreneurial efforts to develop the economy.

Empirical findings seem to confirm this about universal banks. Calomiris (2000), through his study of pre-World War I Germany, has found that universal banking served to reduce the cost of financing industrialization in Germany relative to its corresponding level in other countries where commercial banking is prevalent. He also found that the financial sector reached a higher level of allocative efficiency in the former than in the latter. Therefore, we can rest assured that Islamic banks operating as universal banks give better support to development efforts.

B. FUND MOBILIZATION

Many followers of religions that abhor interest (Hinduism, Buddhism, Judaism, Christianity, and Islam) hold their funds outside the banking and financial sector, thereby placing their financial resources outside the development process. Islamic finance opens the door to mobilizing such

¹¹⁵ For a theoretical analysis of the relationship between finance and growth, see, e. g., 22. Nyankomo (2015), Greenwood and Smith (1997) and Vaona (2005).

resources, especially in many Islamic countries where they would be otherwise kept idle. Islamic financial products would be both interest-free and ethical¹¹⁶. It makes Islamic finance even more effective in resource mobilization to the groups of people interested in both: the avoidance of interest and moral investment involvement.

ADJUSTMENTS TO POLICY SHOCKS

By understanding the prohibition of interest, we find that trading the present against future money at a premium is prohibited. One would discover that the ban on interest amounts precisely to the prohibition of nominal transactions (Al-Jarhi, 2016).

We can, therefore, interpret the prohibition of Reba from the economic perspective as the prohibition of trading present nominal (monetary) values against future nominal

(monetary) values. It is equivalent to the prohibition of all nominal transactions, encompassing both debt and risk trading.

In an economy with Islamic finance, when the supply of money increases, spending increases directly and through more financing. In Islamic finance, both spending and finance are channeled exclusively through real transactions. Direct spending means direct cash flows to the commodity sector. Financing would also boost both supply and demand. The quantity and price speeds of adjustment get full throttle, as no cash balances leak to nominal transactions. The transmission mechanism from monetary expansion to spending is direct. In such an economy, the speeds of adjustments are swift, and the market mechanism is fully supported.

In contrast, monetary expansion in a system with conventional finance transmits more slowly into the real sector. On the one hand, substantial leakage from monetary expansion flows into nominal transactions, *viz.*, debt, and risk trading. The final effects on the commodity sector will not emerge until the payoff of gambling games in the financial market reaches winners' pockets. The first effect of the financing directed to commodity sectors would go to the demand side first. Price

¹¹⁶ One cannot help but notice that the word "Islamic" in this context could have two meanings. The first refers to the quality of the financial product, *viz.*, that it satisfies the Islamic requirements for lawful contracts. The second is that it satisfies ethical standards as defined by religion. In this sense, Islamic finance is equally Christian, Jewish, Buddhist and Hindu.

speeds of adjustment would be higher while quantity speeds of adjustments would lag. Inflation would be the ultimate result, even when the economy is below full employment.

Ultimately, with conventional finance, we have slower speeds of adjustment, biased towards price adjustments. The market mechanism would limp slowly to economic adjustment, without ever settling down.

We can conclude that by prohibiting nominal transactions, Islamic finance boosts speeds of adjustment, as they would also be balanced between quantity and price speeds. The market mechanism is ultimately strengthened.

SYSTEMIC INTEGRITY

Risk (meaning business risk) is an important ingredient in investing. In conventional finance, investment is financed through equity (stock market) or debt (borrowing from banks and issuing bonds). Banks accept only collateral risk. They always avoid bearing the risks of investment failure. Corporate bondholders follow the same rule, and their debt carries seniority over shareholders' rights. The result is that risk is left to be borne by a few specialists, who are either entrepreneurs or shareholders. Such a minority of risk bearers shoulder the brunt of investment failure. Although the per capita risk for society may be low, risk concentration on a small group could be unbearable. The commodity sector would be far removed from the finance sector, as each goes its way. In other words, the system would be disjoint.

In Islamic finance, banks and financial institutions advancing funds share risk with those receiving finance, including producers, traders, and the like. Islamic finance with *proper corporate governance* would allow depositors some influence on banks' investment decisions to share in the decision-making process by sitting on the boards of directors of firms receiving funds. It changes that we have proposed would extend risk and decision sharing to both the asset and liability sides of banks (Aljarhi, 2014).

Therefore, we can notice that risk and decision-making are spread over a much larger number and a wider variety of concerned people. It allows for broader involvement in economic activities so that people will eventually feel they are partners rather than spectators.

The benefit of wider involvement goes beyond the mere feeling, adding to banks' stability. The finance sector would be closely tied to the

commodity sector. It affords the economic system compactness and integrity between its different parts.

EQUITY

By themselves, Islamic banks and financial institutions cannot reduce, let alone eradicate poverty. However, if given the right tools, they can contribute to society's efforts in that regard.

Islam prescribes a tax-subsidy approach to reducing poverty. A levy called *Zakah* is paid out by those whose wealth exceeds a certain minimum level in proportion to their property or income.

Zakah proceeds are earmarked for several uses, including income and *wealth maintenance* for the poor. *Income maintenance* is provided provisionally to the poor until *wealth maintenance* is restored. Zakah proceeds would be earmarked to finance micro-projects whose titles are given to the poor. Its method of poverty reduction can be closely intertwined with that of economic development, as redistribution is mostly directed towards making the poor more productive, which in turn contributes to economic development.

Islamic banks can help by acting as custodians of Zakah proceeds and in their disbursement. Islamic banks are also mandated to have special accounts for the Zakah due on their shareholders' equity. They can even accept direct payments of Zakah and other donations on behalf of depositors and other donors. Banks can then use their Zakah funds for the poor's income and wealth maintenance.

Conventional lending gives utmost attention to the ability to repay loans. To ascertain such ability, it depends overwhelmingly on the provisions of collaterals and guarantees. Thus, those already rich would have the most access to finance. In contrast, Islamic finance providing funds on equity or profit-sharing basis would be more concerned about profitability and rate of return and less concerned about collateral as the primary consideration. Those who are not wealthy, but have worthy investment projects, would have more access to finance.

DEBT SUSTAINABILITY

Conventional debt has specific characteristics that could place debtors in difficulties if circumstances do not allow them to repay in time. Interest is usually calculated on the outstanding balance of debt, usually compounded annually and sometimes at shorter intervals. Debtors who fail

to pay an installment on time are automatically considered delinquent, whether they have an excuse or not. They are often subjected to penalty rates of interest, which are higher than regular rates. It is not uncommon to find borrowers who pay debt service that is many folds the original principal they borrowed. It is particularly symptomatic credit-card and developing-countries debt, as they continue to face debt problems that sometimes reach crisis levels. Debtors frequently seek debt relief through bankruptcy procedures. Developing countries appeal their cases with creditors clubs in London and Paris.

Conventional debt generally lacks sustainability that has been demonstrated at times of crises, when attention is usually directed to bail out lenders (banks) and not borrowers.

The debt created through Islamic finance has characteristics that make it sustainable. The total value of debt, which includes the spot value of commodities purchased on credit and an implicit mark-up, is set from the very beginning¹¹⁷.

When debtors face unavoidable circumstances that would make them temporarily insolvent, Shari'ah rules mandate that they are granted free rescheduling and grace periods to help them bring their finances back to order. No penalty fees can be levied in this case.

Due to the information asymmetry associated with conventional finance, moral hazard leads to using borrowed funds for non-prescribed purposes, leading to default. In contrast, the absence of information asymmetry and moral hazard from Islamic finance, like universal banks and mixing contracts, mandates that the advanced funds are used for their prescribed purpose. Therefore, default resulting from improper use of funds would be most unlikely.

REFORM AGENDA FOR CONVENTIONAL FINANCE

Conventional finance has shown exposure to instability and contagion. The latest International Financial Crisis of 2008 was accompanied by widespread bank failure confronted by expensive bank bailouts, in addition to a serious recession that lingered for four years after the onset of the crisis. Some economists advanced reform proposals revolving around

¹¹⁷ During the International Financial Crisis, had the authorities directed their attention to support debtors instead of creditors, the crises would have stopped without an ensuing serious depression.

tighter regulation. Others suggested that capital movements should be curtailed. An interesting opinion goes back to the Chicago plan submitted during the Great Depression.

Given the above analysis regarding Islamic finance, we can perceive that it contains a prescription to contemporary market economies' problems following institutional changes.

1. Replacing the classical loan contract with the 20 Islamic finance contracts,
2. An exclusive monopoly of the issuing of money through a government-owned central bank,
3. All issued money is to be placed in PLS investment accounts with banks,
4. The central bank issues central investment certificates, to be held by banks and the public and traded in an open market as an interbank and monetary policy instrument,
5. Debt trading, as well as the use of all risk-trading contracts, is prohibited in financial markets,
6. Debtors would be granted free rescheduling in case of temporary illiquidity but penalized in case of delinquency.

Its prescription has been taken directly from the features that make Islamic finance enjoy stability and less prone to crises.

MIXED SYSTEMS HURDLES

The eight advantages of Islamic finance appear to be externalities that accrue to the system as a whole but do not accrue directly to any Islamic bank or financial institution in particular. It creates an incentive problem; Islamic bankers would not be sufficiently motivated to follow the Islamic finance paradigm to the letter. The incentive problem can be solved through some method of internalizing external benefits.

In hybrid systems with the absence of internalization, Islamic bankers have to compete with conventional bankers who use the classical loan contract, which is more straightforward, requiring fewer procedures and less documentation than the 16 Islamic finance modes. Strict following of the Islamic finance paradigm would greatly benefit Islamic banks and financial institutions and higher profitability. However, Islamic bankers being conventionally trained and working in a conventional environ-

ment may still prefer to mimic traditional finance. Experience has shown that they can convince their Shari'ah boards to develop the necessary rules for imitating.

To maintain their competitive position, they either switch to outright conventional finance or maintain their nominal brand name and mimic conventional finance. It enables them to streamline procedures and documentation to conform to the pattern to which they have grown accustomed.

CONCLUSIONS AND POLICY RECOMMENDATIONS

Using macroeconomic, banking price, and finance theories, we have demonstrated that Islamic finance, when applied according to our paradigm (Al-Jarhi, 1981), would have distinct advantages. Moreover, it provides a justifiable prescription for reforming the contemporary market economy.

The advantages of Islamic finance formulated above, although noteworthy, are not sufficient to induce Islamic bankers to be true to Islamic finance. The reason is that such advantages are mostly external and can only induce behavior after being internalized. An important policy implication is that such internalization is left to banking and finance regulators. Only when Islamic banking's license is strictly enforced by the monetary regulators would Islamic bankers stop mimicking conventional finance.

Our main policy implications are only one headline that requires a more detailed explanation, which could be found somewhere else (Al-Jarhi, 2014). Furthermore, some Islamic finance contracts require particular guidelines to reduce the information asymmetry associated with them. Certain modifications have to be introduced to Islamic banks' corporate governance, especially in allowing investment account holders to be represented on their boards of directors.

APPENDIX TO CH. II: QURANIC COMMANDS TO USE INTELLECT: EXAMPLES

Ch. & Verse No.	Verse Text	
		.١
(٤٤) (البقرة) Al-Baqara (44)	أَتَأْمُرُونَ النَّاسَ بِالْبِرِّ وَتَنْسَوْنَ أَنْفُسَكُمْ وَأَنْتُمْ تَتْلُونَ الْكِتَابَ أَفَلَا تَعْقِلُونَ Do you order the people's righteousness and forget yourself while you recite the Scripture? Then will you not reason?	.٢
(٧٣) (البقرة) Al-Baqara (73)	فَقُلْنَا اضْرِبُوهُ بِبَعْضِهَا كَذَلِكَ يُحْيِي اللَّهُ الْمَوْتَى وَيُرِيكُمْ آيَاتِهِ لَعَلَّكُمْ تَعْقِلُونَ So, We said, "Strike the slain man with part of it." Thus does Allah bring the dead to life, and He shows you His signs that you might reason.	.٣
(١٧١) (البقرة) Al-Baqara (171)	وَمَثَلِ الَّذِينَ كَفَرُوا كَمَثَلِ الَّذِي يَنْعِقُ بِمَا لَا يَسْمَعُ إِلَّا دُعَاءً وَنِدَاءً صُمُّ بِكُمْ عَمِي فَهُمْ لَا يَعْقِلُونَ The example of those who disbelieve is like that of one who shouts at what hears nothing but calls and cries cattle or sheep - deaf, dumb, and blind, so they do not see reason.	.٤
(٢٤٢) (البقرة) Al-Baqara (242)	كَذَلِكَ يُبَيِّنُ اللَّهُ لَكُمْ آيَاتِهِ لَعَلَّكُمْ تَعْقِلُونَ Thus, does Allah clarify to you His verses that you might use reason?	.٥
(٢٦٩) (البقرة) Al-Baqara (269)	يُؤْتِي الْحِكْمَةَ مَنْ يَشَاءُ وَمَنْ يُؤْتَ الْحِكْمَةَ فَقَدْ أُوتِيَ خَيْرًا كَثِيرًا وَمَا يَدْرِكُهُ إِلَّا أُولُو الْأَلْبَابِ He gives wisdom to whom He wills, and whoever has been given knowledge has certainly been given much good. And none will remember except those of understanding.	.٦
(٧) (آل عمران) Al-Imran (7)	هُوَ الَّذِي أَنْزَلَ عَلَيْكَ الْكِتَابَ مِنْهُ آيَاتٌ مُحْكَمَاتٌ هُنَّ أُمُّ الْكِتَابِ وَأُخَرٌ مُتَشَابِهَاتٌ فَأَمَّا الَّذِينَ فِي قُلُوبِهِمْ زَيْغٌ فَيَتَّبِعُونَ مَا تَشَابَهَ مِنْهُ ابْتِغَاءَ الْفِتْنَةِ وَابْتِغَاءَ تَأْوِيلِهِ وَمَا يَعْلَمُ تَأْوِيلَهُ إِلَّا اللَّهُ وَالرَّاسِخُونَ فِي الْعِلْمِ يَقُولُونَ آمَنَّا بِهِ كُلٌّ مِنْ عِنْدِ رَبِّنَا وَمَا يَذَّكَّرُ إِلَّا أُولُو الْأَلْبَابِ It is He who has sent down to you, [O Muhammad], the Book; in it are verses [that are] precise - they are the foundation of the Book - and others unspecific. As for those in whose hearts is deviation [from truth], they will follow that of it which is unspecific, seeking discord and seeking an interpretation [suitable to them]. And no one knows its [proper] interpretation except Allah. But those firm in knowledge say, "We believe in it. All [of it] is from our Lord." And no one will be reminded except those of understanding.	.٧
(١٩٠) (آل عمران) Al-Imran (190)	إِنَّ فِي خَلْقِ السَّمَاوَاتِ وَالْأَرْضِ وَاخْتِلَافِ اللَّيْلِ وَالنَّهَارِ لَآيَاتٍ لِأُولِي الْأَلْبَابِ Indeed, in the creation of the heavens and the earth and the	.٨

	alternation of the night and the day are signs for those of understanding.	
(٥٨) (المائدة) Al-Maida (58)	وَإِذَا نَادَيْتُمْ إِلَى الصَّلَاةِ اتَّخَذُوهَا هُزُوءًا وَلَعِبًا ذَلِكَ بِأَنَّهُمْ قَوْمٌ لَا يَفْقَهُونَ And when you call to prayer, they take it in ridicule and amusement. That is because they are people who do not use reason.	.٩
(١٠٣) (المائدة) Al-Maida (103)	مَا جَعَلَ اللَّهُ مِنْ بَحِيرَةٍ وَلَا سَائِبَةٍ وَلَا وَصِيلَةٍ وَلَا حَامٍ وَلَكِنَّ الَّذِينَ كَفَرُوا يَفْتَرُونَ عَلَى اللَّهِ الْكَذِبَ وَأَكْثَرُهُمْ لَا يَعْقِلُونَ Allah has not appointed [such innovations as] bahirah or sa'ibah or wasilah or ham. But those who disbelieve invent falsehood about Allah, and most of them do not reason.	.١٠
(٢٢) (الأنفال) (Al-Anfaal) (22)	إِنَّ شَرَّ الدَّوَابِّ عِنْدَ اللَّهِ الصُّمُّ الْبُكْمُ الَّذِينَ لَا يَعْقِلُونَ Indeed, the worst of living creatures in the sight of Allah are the deaf and dumb who do not use reason.	.١١
(١١١) (يوسف) (Yusuf) (111)	لَقَدْ كَانَ فِي قَصَصِهِمْ عِبْرَةٌ لِأُولِي الْأَلْبَابِ مَا كَانَ حَدِيثًا يُفْتَرَى وَلَكِنْ تَصْدِيقَ الَّذِي بَيْنَ يَدَيْهِ وَتَفْصِيلَ كُلِّ شَيْءٍ وَهُدًى وَرَحْمَةً لِقَوْمٍ يُؤْمِنُونَ There was certainly in their stories a lesson for those of intellect. Never was the Qur'an a narration invented, but a confirmation of what was before it and a detailed explanation of all things and guidance and mercy for a people who believe.	.١٢
(٤) (الرعد) (Al-Ra'd) (4)	وَفِي الْأَرْضِ قِطْعٌ مُتجاوِراتٌ وَجَنَّاتٌ مِنْ أَعْنَابٍ وَزُرُوعٌ وَنَخِيلٌ صِنْوَانٌ وَعَبْثٌ صِنْوَانٍ يُسْقَى بِمَاءٍ وَاحِدٍ وَنَفْضِلٌ بَعْضُهَا عَلَى بَعْضٍ فِي الْأَكْلِ إِنَّ فِي ذَلِكَ لَآيَاتٍ لِقَوْمٍ يَعْقِلُونَ And on earth are neighboring plots and gardens of grapevines and crops and palm trees, [growing] several from a root or otherwise, watered with one water; but We make some of them exceed others in [quality of] fruit. Indeed in that are signs for people who reason.	.١٣
(١٩) (الرعد) (Al-Ra'd) (19)	أَفَمَنْ يَعْلَمُ أَنَّمَا أُنزِلَ إِلَيْكَ مِنْ رَبِّكَ الْحَقُّ كَمَنْ هُوَ أَعْمَى إِنَّمَّا يَتَذَكَّرُ أُولُو الْأَلْبَابِ Then is he who knows that what has been revealed to you from your Lord is the truth like one who is blind? They will only be reminded who are people of understanding -	.١٤
(٥٢) (إبراهيم) (Ibrahim) (52)	هَذَا بَلَاغٌ لِلنَّاسِ وَلِيُنذَرُوا بِهِ وَلِيَعْلَمُوا أَنَّمَا هُوَ إِلَهُ وَاحِدٌ وَلِيَذَكَّرَ أُولُو الْأَلْبَابِ It [Qur'an] is a notification for the people that they may be warned thereby and that they may know that He is but one God and that those of intellect will be reminded.	.١٥
(٧٥) (الحجر) (Al-Hijr) (75)	إِنَّ فِي ذَلِكَ لَآيَاتٍ لِمَنْتَوْسَمِعِينَ Indeed in that are signs for those who discern.	.١٦

<p>(١٢٨) (طه) (Taa-Haa) (128)</p>	<p>أَفَلَمْ يَهْدِ لَهُمْ كَمْ أَهْلَكْنَا قَبْلَهُمْ مِنَ الْفُرُونِ يَمْشُونَ فِي مَسَاكِينِهِمْ إِنَّ فِي ذَلِكَ لَآيَاتٍ لِّأُولِي النَّهْيِ</p> <p>Then, has it not become clear to them how many generations We destroyed before them as they walk among their dwellings? Indeed in that are signs for those of intelligence.</p>	.١٧
<p>(٤٦) (الحج) (Al-Hajj) (46)</p>	<p>أَفَلَمْ يَسِيرُوا فِي الْأَرْضِ فَتَكُونَ لَهُمْ قُلُوبٌ يَعْقِلُونَ بِهَا أَوْ آذَانٌ يَسْمَعُونَ بِهَا فَلَيْسَ بَلَاغٌ لِّأَعْيُنِنَا لَمْ نَسْمَعْ مِنَ الَّذِينَ أُوتُوا الْكِتَابَ مِنْ قَبْلِكَ إِلَّا أَنْ يَقُولُوا سَمِعْنَا وَأَطَعْنَا إِنَّهُمْ عَادُوا عَلَىٰ عَذَابِهِمْ أَنَّهُم لَا تُعَى الْأَبْصَارُ وَلَكِنَّ تَعَى الْقُلُوبُ الَّتِي فِي الصُّدُورِ</p> <p>So have they not traveled through the earth and have hearts by which to reason and ears by which to hear? For indeed, it is not eyes that are blinded but blinded are the hearts that are within the breasts.</p>	.١٨
<p>(٢٤) (الروم) (Al-Room) (24)</p>	<p>وَمِنْ آيَاتِهِ يُرِيكُمُ الْبَرْقَ خَوْفًا وَطَمَعًا وَيُنزِلُ مِنَ السَّمَاءِ مَاءً فَيُحْيِي بِهِ الْأَرْضَ بَعْدَ مَوْتِهَا إِنَّ فِي ذَلِكَ لَآيَاتٍ لِّقَوْمٍ يَعْقِلُونَ</p> <p>And of His signs is [that] He shows you the lightning [causing] fear and aspiration, and He sends down rain from the sky by which He brings to life the earth after its lifelessness. Indeed in that are signs for people who use intellect.</p>	.١٩
<p>(٢٩) (ص) (Saad) (29)</p>	<p>كِتَابٌ أَنْزَلْنَاهُ إِلَيْكَ مُبَارَكٌ لِيَدَّبَّرُوا آيَاتِهِ وَلِيَتَذَكَّرَ أُولُو الْأَلْبَابِ</p> <p>[It is] a blessed Book which We have revealed to you, [O Muhammad], that they might reflect upon its verses and that those of intellect would understand.</p>	.٢٠
<p>(٤٣) (ص) (Saad) (43)</p>	<p>وَوَهَبْنَا لَهُ أَهْلَهُ وَمِثْلَهُمْ مَعَهُمْ رَحْمَةً مِنَّا وَذِكْرًا لِّأُولِي الْأَلْبَابِ</p> <p>And We granted him his family and a like [number] with them as a mercy from Us and a reminder for those of understanding.</p>	.٢١
<p>(٩) (الزمر) (Al-Zumar) (9)</p>	<p>أَمَّنْ هُوَ قَانِتٌ آنَاءَ اللَّيْلِ سَاجِدًا وَقَائِمًا يَحْذَرُ الْآخِرَةَ وَيَرْجُو رَحْمَةَ رَبِّهِ قُلْ هَلْ يَسْتَوِي الَّذِينَ يَعْلَمُونَ وَالَّذِينَ لَا يَعْلَمُونَ إِنَّمَا يَتَذَكَّرُ أُولُو الْأَلْبَابِ</p> <p>Is one who is devoutly obedient during periods of the night, prostrating and standing [in prayer], fearing the Hereafter and hoping for the mercy of his Lord, [like one who does not]? Say, "Are those who know equal to those who do not know?" Only they will remember [who are] people of understanding.</p>	.٢٢
<p>(١٨) (الزمر) (Al-Zumar) (18)</p>	<p>الَّذِينَ يَسْتَمِعُونَ الْقَوْلَ فَيَتَّبِعُونَ أَحْسَنَهُ أُولَئِكَ الَّذِينَ هَدَاهُمُ اللَّهُ وَأُولَئِكَ هُمْ أُولُو الْأَلْبَابِ</p> <p>Who listen to speech and follow the best of it. Those are the ones Allah has guided, and those are people of understanding.</p>	.٢٣
<p>(٥) (الجاثية) (Al-Jaathiya) (5)</p>	<p>وَإِخْتِلَافِ اللَّيْلِ وَالنَّهَارِ وَمَا أَنْزَلَ اللَّهُ مِنَ السَّمَاءِ مِنْ رِزْقٍ فَأَحْيَا بِهِ الْأَرْضَ بَعْدَ مَوْتِهَا وَتَصْرِيفِ الرِّيَّاحِ آيَاتٍ لِّقَوْمٍ يَعْقِلُونَ</p> <p>And [in] the alternation of night and day and [in] what Allah</p>	.٢٤

	<p>sends down from the sky of provision and gives life thereby to the earth after its lifelessness and [in His] directing of the winds .are signs for a people who reason</p>	
<p>(١٤) (الحشر) (Al-Hashr) (14)</p>	<p>لَا يُقَاتِلُونَكُمْ جَمِيعًا إِلَّا فِي قُرَىٰ مُّحَصَّنَةٍ أَوْ مِنْ وَرَاءِ جُدُرٍ بَأْسُهُمْ بَيْنَهُمْ شَدِيدٌ تَحْسَبُهُمْ جَمِيعًا وَقُلُوبُهُمْ شَتَّىٰ ذَلِكَ بِأَنَّهُمْ قَوْمٌ لَا يَعْقِلُونَ</p> <p>They will not fight you all except within fortified cities or behind walls. Their violence among themselves is severe. You think they are together, but their hearts are diverse. That is because they are a people who do not know reason.</p>	<p>.٢٥</p>

APPENDIX TO CH. XVIII: ISSUES RELATED TO UNIVERSAL BANKING

The following lists major pro and con arguments related to universal banks' ability to deal with moral hazard and adverse selection.

I. ALTERATION OF CORPORATE CAPITAL STRUCTURE IN FAVOR OF DEBT AND AGAINST EQUITY

Universal banks can facilitate access to information about firms. German universal banks are described as financial supermarkets providing commercial banking, securities underwriting, and brokerage, holding positions on joint-stock companies' supervisory boards, voting equity shares in proxy for customers, and sometimes taking short-term stakes in companies (Fohlin, 2000b). Theoretically, universal banking and the resulting bank attachments with corporations could give some firms more access to external finance, thereby motivating them to change their preferences regarding debt finance.

Fohlin (2000b) found that universal banking is not associated with different leverage nor debt maturity structure. While older firms continue to have lower leverage and short-term debt, bank attachment is not associated with earlier than average reductions in leverage as firms mature or alter short-term debt use predictors. The findings offer little support for the idea that formal bank-firm relationships altered German industrial firms' financing options or choices.

II. COMBINING BANKING WITH TRADE

Barth, Caprio, and Levine's (2000) empirical study highlight the negative implications of imposing regulatory restrictions on commercial banks' activities. Specifically, regulations that restrict banks' ability to (a) engage in securities activities and (b) own non-financial firms are closely associated with greater banking sector instability. Moreover, their analyses suggest no countervailing positive benefits from restricting the mixing of banking and commerce or restricting banks' activities in the areas of investment banking, insurance, and real estate.

III. BANK RELATIONSHIP AND FIRM PROFITABILITY

Under universal banking, firms deal with one bank, which is also one of its shareholders. Some economists suspect that such a single firm-bank relationship could be less profitable.

Degryse and Ongena (2000) empirical work suggests that the profitability of Norwegian publicly listed firms with bilateral bank relationships

is higher than the profitability of firms with multilateral relationships. Its result is quite robust. It holds, controlling for firm age, size, debt, asset intangibility, and Tobin's Q, and in a variety of specifications. The result seems to confirm the implication of Yosha (1995) and von Rheinbaben and Ruckes (1998). If firms disclose proprietary information to creditors, firms using bilateral financing achieve higher sales profitability than those using multilateral financing.

IV. THE ORGAN BANK HYPOTHESIS

The "Organ Bank Hypothesis," advanced first by the Japanese Economist T. Kato and tested later by Okazaki and Yokoyama (2001), claims that the bank-firm relationship could reflect negatively on the efficiency and stability of the banking system. Okazaki and Yokoyama have found that in prewar Japan, interlocking directorship and auditing between banks and non-banking companies were very pervasive in large-sized banks. They also found that interlocking negatively influenced banks' liquidity performance and profitability, which played a role in increasing bank closures during the Showa Financial Crises of 1927.

In contrast, when studying the German universal banking system in the pre-World War I period, compared with the banking system prevailing in the UK and the USA, Fohlin (2000a) finds a different perspective. Her results indicate that universality does not lead to appreciable market power. Concentration in the German banking industry does not in itself produce anti-competitive behavior.

Therefore, we can conclude that other reasons may explain the Japanese case, and the Organ Bank Hypothesis is by no means generally valid.

V. THE CONSISTENCY OF INTEREST HYPOTHESIS

Gorton and Schmidt (1996) consider universal banking an alternative mechanism to the stock market for risk-sharing that could provide information to guide investment. In Germany, the stock market has been historically small. Universal banks hold equity and proxy voting rights over their customers' stock holdings. They lend to firms and sit on their corporate boards simultaneously. If German banks were acting as substitutes to the stock market, their behavior would improve corporate performance. Alternatively, banks could benefit from the inside information they gather about the firms they lend while exercising monopolistic power over access to external finance. It would lead to interest be-

tween banks and other shareholders, particularly those who have delegated their voting proxy rights.

Gorton and Schmidt (1996) test the consist-of-interest hypothesis between German banks during the 1970s and 1980s. They find that German banks improved the performance of firms they finance to the extent of their equity holdings. No evidence was found on the consist of interest concerning the use of proxy votes. It was the case in their sample of 1974. In 1985, German security markets became more developed. While banks continued to affect corporate performance, their influence could not be distinguished from that of non-bank shareholders. Gorton and Schmidt's study appears to cast substantial doubt on the consist-of-interest hypothesis.

Gorton and Schmidt (1996) investigate the potential of interest in the issuance of public securities when the underwriting of the initial offering is done by an investment bank that holds equity in the concerned firm who would be similar to a universal bank. The evidence in their study suggests that interest exists, i. e., the underwriting bank can utilize the superior information it obtains through its affiliation with the firm. Yet, the interest effects are fully discounted, as all market participants fully anticipate them. In this regard, Gorton and Schmidt find that initial public offering underwritten for a firm by its affiliated investment bank performs as well or better than issues of firms in which no investment bank holds a prior equity position.

VI. BANK CONCENTRATION AND CONCENTRATION IN THE INDUSTRIAL SECTOR

In the European experience, concentration in universal banking was often associated with a concentration in the industrial sector. Da Rin and Hellmann (2001) consider that in their big-push model, the issue of concentration¹¹⁸. They theorize that universal banks start with financing *pioneers* in their industries. Then, they continue to finance incumbents. They conclude that large and powerful banks have a vested interest in preserving industrial monopolies. However, universal banks need to be robust and large to limit entry into the financial market. They also need

¹¹⁸ For other models on the ills of market power in financial markets, see Hart (1983) or Aghion, Dewatripont and Rey (1997).

either the outright support of government translated into regulations or at least their acquiescence.

VII. CORPORATE GOVERNANCE

The fact that universal banks sit on boards of firms they finance and have a power that may exceed what would be commensurate with their equity holdings could create problems of corporate governance. First, to internalize the privileges usually accorded to board members, universal bank management would tend to appoint representatives to boards from within the narrowest circle of top management. Eventually, the few members of top management find themselves overloaded with the job of monitoring the performance of too many banks. That would make monitoring much less effective.

Second, universal banks' top management members may not have the necessary knowledge and skills to exercise monitoring effectively. Third, as they are full management members, their reporting on the board meetings they attend may turn to be too brief and non-technical for technicians whose job is limited to desk-type follow-up to draw the right conclusions at the right time.

Regulations and supervision would easily avoid all the above problems. Simple rules setting the proper qualifications of bank representatives on the boards, putting a ceiling on the number of board members, and perhaps prohibiting top management from taking board members outside their banks would ease the situation.

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This Directory presents a comprehensive and detailed practical study of the Islamic financial products. It defines every product and elaborates on its applications and Shariah issues to serve as a guide and a reference for all those who are willing to study and understand Islamic finance, including researchers, academics and Shariah scholars. By so doing, Islamic finance shall be able to have more expertise resources to help develop the industry further. It is hoped that this Directory should help provide a straightforward platform to structure Islamic financial products in the right way and to streamline the way of application and implementation of these products.

The Directory should also function as a manual for individuals and clients of Islamic financial institutions, since it educates them about their products and answers the questions they may have about them, including their Shariah foundations a legitimacy, especially those products whose Shariah compliance has been debated or whose ways of implantation have differed.

This Directory is also a guide to the fatwa bodies and those in charge of managing the Islamic financial institutions, to help streamline the application of Islamic banking products, and to provide an independent Shariah assessment of their Shariah compliance and highlight the errors that may occur during implantation.