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Islamic Finance

Islamic Capital Markets

A Comparative Approach

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INCEIF
THE GLOBAL UNIVERSITY OF ISLAMIC FINANCE

WILEY

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To our families for all the love and support

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PREFACE

This book is the result of my efforts in designing and teaching the Islamic Capital Markets (ICM) course at INCEIF. What began as class handouts and brief notes evolved first into the ICM course module for the Chartered Islamic Finance Professional (CIFP) at INCEIF. Subsequently, with input from my colleague and mentor, Professor Abbas Mirakhor, that course module has been developed into this full-blown textbook on Islamic capital markets. The book covers the spectrum of capital market products, institutions, and markets, encompassing debt, equity, derivatives, and foreign exchange markets. Though we have tried to be global in orientation, the book by necessity uses Malaysian examples, largely because Malaysia has been the pioneer in Islamic capital market development and has put in place the full range of ICM products and institutions. Wherever possible, we have used examples from other countries, such as Bahrain, Sudan, Saudi Arabia, and Pakistan.

Although the book is designed for a master's-level course in capital markets, it can be used for similar courses in professional programs and at the advanced undergraduate level. In ensuring the theoretical rigor necessary for a graduate-level course, some amount of quantitative models and techniques are used. We have, however, tried to keep these to a minimum. As is evident from early on, we have tried to build the intuition behind the models and techniques. The material is written in an easy-to-read manner.

What is unique about this book is the combined coverage of both the conventional and Islamic version of instruments. Chapter 4, for example, discusses the conventional money markets while Chapter 5 discusses the Islamic interbank money market. In similar fashion, the bond market is covered in Chapter 6, while in Chapter 7 it's the market for *sukuk*. This arrangement not only enables easy comparison for readers, but more importantly provides students with a complete picture of capital markets. This is important because ICM does not operate in isolation or exclusively. In most countries, ICM operates with or complements conventional capital markets. As teachers, we felt that by focusing solely on ICM products, the few ICM books currently available miss the bigger picture. This handicaps students who might otherwise not

get exposure to the larger and certainly more sophisticated conventional products. As these products have evolved over a long period, understanding them enables students to better understand and appreciate the design of their Islamic variant. This combined approach also enables the blending of the theoretical rigor behind conventional products with the *Shariah* compliance of Islamic finance products. This makes it possible for students and future ICM product structures to price and evaluate the applicative efficacy of their products.

Overview of Contents

The book begins with an introductory chapter on founding thoughts of markets, asset prices, risk, uncertainty, and risk sharing. The risk-sharing philosophy runs throughout the book. The first three chapters provide the foundation. Chapters 4 through 12 examine each ICM or conventional market and products. The final chapter, in providing an overall conclusion, examines the role of government in developing capital markets, specifically, Islamic capital markets.

Additional Materials

For instructors using the book, the following two supporting materials are available:

1. PowerPoint slides for each chapter.
2. Fully worked out solutions to all end-of-chapter problems.

ACKNOWLEDGMENTS

In producing this book, we have benefited from the help of many people. At least three groups of my students at INCEIF have had to go through the inconvenience of working with incomplete material and providing feedback. We are grateful to them all. We must also acknowledge Abdoul Karim Diaw, Sarkar Humayun Kabir, and Syed Aun Raza Rizvi for their role as research assistants at different points of this project. Nor Farisah Ibrahim, who as my secretary had the arduous task of typing and retyping the manuscript, has our sincere gratitude. We also thank Dr. Noureddine Krichene, who reviewed the course module version of this material and provided useful insights. Finally, we thank the editorial and production staff of John Wiley & Sons: Nick Wallwork, Jules Yap, and Gemma Rosey of the Singapore office and Emilie Herman in New York.

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CHAPTER 1

Founding Thoughts—Adam Smith, Capitalism, and Islamic Finance

Introduction and Overview

Chapter Topics

1. The Roots: The Economy, Real and Financial Sectors, Risk and Islamic Finance
2. Uncertainty and Risk
3. Why Is There Uncertainty and Risk?
4. Types of Risk
5. Risk in the Real Sector and in the Financial Sector
6. Financial System of Capitalism: The Foundations
7. Smith and Arrow
8. Smith and Ethical Rules
9. An Arrow-Debreu Economy

Chapter Objective

This chapter is designed to introduce students to the conceptual basics of linkage between financial and real economy structures and the risks associated with these sectors. On completing this chapter, you should have a good understanding of the framework and theory of capitalism and a comparative understanding of the foundations of Islamic financial system.

Key Terms

Arrow-Debreau economy
capitalism
complete contracts
complete markets
contracts and trust
intermediate
invisible hand
markets and exchange
property rights
Qu'ran and *Sunnah*
risk and sharing
The Theory of Moral Sentiments
uncertainty and risks

1.1 The Roots: The Economy, Real and Financial Sectors, Risk and Islamic Finance

This book is about capital markets, a vital part of any economy. As Chapter 2 explains, an economy can be thought of as being composed of a real sector and a financial sector. The former is where goods and services are produced. Financial sectors, on the other hand, facilitate real sector activities through the provision of financing.

In any society, there are those who save surpluses remaining from their income, thus are surplus units. There are also those who are deficit units because they are either spending more than the income they earn or are in need of funds to complete or initiate projects in the real sector of the economy. The financial sector of an economy's important function is to intermediate between these surplus and deficit units. It does so by providing short-term funds in the money market and medium- to long-term funds through the capital market. What has become painfully clear during the post–2007/2008 financial crisis is that how well a financial sector performs its primary function of intermediation determines the stability of the financial sector and, consequently, that of the entire economy. Many economists believe that a major underlying cause of the crisis was that the relation between finance and real sector activities has become increasingly weakened in the past four decades. Financial sectors have grown much more rapidly than the real sectors and have taken a life of their own; the sectors have decoupled.

A crucial auxiliary function of the financial sector is to provide ways and means by which members of the society manage financial risks they face. Instruments developed in the financial sector are designed to perform this function. An understanding of risk is elemental to comprehending the role and functioning of the financial sector.

1.2 Uncertainty and Risk

Making decisions is one of the most fundamental capabilities of humans. Actions follow decisions. Individuals have to make decisions and take actions that effect their own as well as others' lives at some point in the future. But the future is, for the most part, unknown and therefore unpredictable and uncertain. Uncertainty is a fact of human existence as we all live on the brink of an uncertain future. Facing an unknown and often unknowable future, we still have to choose decisions and take actions. Individuals do this by forming expectations about the payoffs to alternative courses of action.

Expectations can be formed by individuals objectively or subjectively. In the first case, expected payoffs are based on known probability techniques. Alternatively, individuals can base their expectations of payoffs on decisions and courses of action of their own or others' personal experiences. Either way, the expected outcomes will form expressions in terms of probability of occurrences of consequences of actions. Through this process, uncertainty is converted to risk. Therefore, risk is a consequence of choice under uncertainty. It is uncertainty about the future that makes human lives full of risk.

Risks can arise because the decision maker has little or no information regarding which state of affairs will materialize in the future. The individual nevertheless makes a decision and takes appropriate action based on expectations. Risk can also arise because the decision maker does not or cannot consider all possible states or outcomes that may prevail in the future. There may be so much missing information that it is impossible to form expectations about payoffs to decisions and actions. This ambiguity can lead to paralysis in

decision making. One way of dealing with ambiguity caused by missing information is patience—postponing decisions until more information becomes available.

1.3 Why Is There Uncertainty and Risk?

How can uncertainty and its overwhelming influence in human life be explained? Why is life subjected to so much uncertainty? These are particularly significant questions for those believing in "intelligent design" or in a Supreme Creator. Why is uncertainty created for humans? David Bartholomew, a statistician, provides an answer in his book *God, Chance and Purpose* (2008). He suggests that "risk is a necessary ingredient for full human development. It provides the richness and diversity of experience necessary to develop our skills and personalities" (p. 230). Moreover, he argues that the "development of human freedom requires that there be sufficient space for that freedom to be exercised. Chance seems to provide just the flexibility required and freedom; risk is the price we pay for freedom" (pp. 200, 239).

Similar reasoning is clearly discernible from the *Qu'ran*. Freedom is an ongoing characteristic of human dignity bestowed by the Supreme Creator. The right path, and the rules of traversing it, is prescribed and differentiated from the wrong path. It is then left to humans' freedom of choice to make decisions as part of their rights and responsibilities. Uncertainty and risk are there to allow humans to learn as they are confronted with choices. This process is termed *testing*. Humans choose under uncertainty. Their choices determine the consequences. Confronted with a choice, they are tested as to the path they select. The test is whether they choose to act in accordance with rules prescribed by their Creator. Clearly, individuals exercise their freedom in choosing to comply with these rules.

In a number of verses, the *Qu'ran* asserts that life on this earth is temporary. As such it is a crucible of constant testing, trials, and tribulations (see, for example, Verse 155 of Chapter 2 and Verse 2 of Chapter 76). Not even the believers are spared testing. In Verse 2 of Chapter 29 the *Qu'ran* asks: "Do humans think that they will be left alone when they say: we believe, and they therefore will not be tested?" To every test, trial, and tribulation in their lives, humans respond and in doing so they demonstrate a measure self-awareness and consciousness of their Creator. If the response-action is in compliance with the rules prescribed by the Creator, then the test becomes an occasion for self-development and strengthened consciousness of the Creator. All actions are risky because the full spectrum of future consequences of actions, within the horizon of birth to eternity, is not known with uncertainty. As the *Qu'ran* asserts, "At times you may dislike a thing when it is good for you and at times you like a thing and it is bad for you. Allah knows and you do not"(Verse 216, Chapter 2). In short, human life here is a time of learning, testing, and developing through the exercise of freedom of choice granted to humans by their Creator. And testing is not possible without risk and uncertainty.

1.4 Types of Risk

Individuals in any society face two types of risk. The first is systemic, the result of the exposure of the economy to uncertainty and risk due to external and internal economic circumstances of the society and its vulnerabilities to shocks. How well an economy will absorb shocks depends on its resilience. This depends on the institutional and policy infrastructure of risk management in the society. How flexibly the infrastructure responds to shocks determines how much this type of risk impacts individual lives when they materialize.

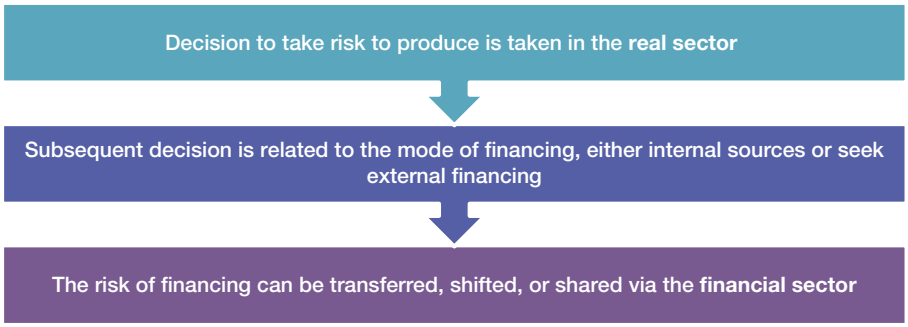
The second type of risk that individuals face relates to the circumstances of their own lives, which include risk of injuries, illness, accidents, bankruptcies, or even changes of tastes and preferences. These kinds of risks are referred to as *idiosyncratic,* and when they materialize they play havoc with people's livelihood. This is because often people's livelihood and their consumption level depend directly on their income. If income becomes volatile, so will their livelihood and consumption. Participation in capital market activities can help mitigate idiosyncratic risk by diversifying the source of livelihood. Capital market instruments, when purchased by the individuals, reduce the correlation between income and consumption and strengthen the resilience of their lives to idiosyncratic shocks. Thus when shocks reduce income, consumption of the individuals invested in capital markets need not suffer.

1.5 Risk in the Real Sector and in the Financial Sector

As mentioned earlier, there are two major sectors in the economy. The real sector is where goods and services are produced. Until recently, the major function of the financial sector was to facilitate the financing of the projects. The decision to take risk to produce a product precedes the decision on what to do with the risk in financing the project. Once the decision to undertake a project in the real sector is made subsequent, a decision has to be made as the mode of financing. The risk taken in the real sector has to consider risk associated with the business end of the project. The firm or the entrepreneur can finance the project from its own sources or seek external financing. The risk of financing can be transferred, shifted, or shared. Figure 1.1 shows how risks that originate in the real sector get transferred, shifted, or shared in the financial sector.

Risk of financing is transferred when a trusted intermediary makes the surplus funds of savers available to the units seeking funds for their project. The intermediary is trusted to know the borrowers well enough through due diligence to know that they could be trusted or obtain strong enough collateral to protect the funds. Financial risk is thus transferred from the surplus units to deficit units. Until the 1980s, a commercial

FIGURE 1.1 Risk in the Real Sector and in the Financial Sector



bank's main function was risk transfer, where the private sector's savings were channeled to finance the real sector's activities. Risk of a financial transaction may be shifted to a third party that is not directly involved in the transaction. This happens as a result of the pure financial transaction, in other words, those that had no relations to the real sector of the economy. Pure financial trading prior to the crisis of 2007/2008 shifted risk ultimately to the taxpayers, who were unaware they were bearing the risk of the financial sector. Risk is shared when parties to a transaction carry business and financial risk in accordance to their ability to bear risk.

1.6 Financial System of Capitalism: The Foundations

From the time of formal inception of contemporary capitalism until the second half of the twentieth century, intermediation between surplus and deficit units in support of real sector activities was considered the most important function of the finance sector. As mentioned earlier, this is a framework for risk transfer. Virtually all supervisory and regulatory infrastructure of the financial sector was designed with risk transfer in view. The 2007/2008 crisis, however, demonstrated how easily and rapidly a system operating within a framework of risk transfer can switch into risk shifting.

Many consider that the origin of systematic intellectual thinking about market capitalism began with Adam Smith's *Wealth of Nations*. Much of the analytical efforts of economists from mid-nineteenth to mid-twentieth centuries was devoted to proving Adam Smith's basic proposition that "a decentralized economy motivated by self-interest" would allocate resources more efficiently than other alternatives (Arrow and Hahn 1971, vi–vii). This conception envisioned the economy as a market system guided by the "invisible hand" toward smooth functioning, coordinating "autonomous individual choices in an interdependent world" (Evensky 1993).

The process of nailing down a concrete and analytic vision of a capitalist market economy overlooked the fact that Smith's own vision of the economy—the subject of *The Wealth of Nations*—was embedded in his vision of a moral-ethical system. And that system was described well in Smith's book *The Theory of Moral Sentiments* written more than one and half decades earlier than *The Wealth of Nations*. Arguably, the first book established the institutional framework, or the rules of behavior for participants in the economy envisioned in *The Wealth of Nations* (Sen 1982, 1987; Evensky 1993; Mirakhor and Idris 2009; Mirakhor and Askari 2010).

Whereas conventional economics considered Smith's notion of "invisible hand" as a coordinator of independent decisions of market participants, in both *The Theory of Moral Sentiments* and in *The Wealth of Nations*, the metaphor refers to the design by the Supreme Creator "who arranged the connecting principles such that the actions of all those seeking their own advantage could produce the most efficient allocation of resources, and thus the greatest possible wealth for the nation. This is indeed a benevolent designer" (Evensky 1993, 9). Smith contended that the objective of the Divine Design must have been the happiness of humans "when he brought them into existence. No other end seems worthy of that supreme wisdom and divine benignity which we necessarily ascribe to him" (Smith 2006, 186–189). Major contribution of Smith in his *Theory of Moral Sentiments* is to envision a coherent moral-ethical social system consistent with the Supreme Creator's design and how each member of society would enforce ethical positions.

Recognition of human frailties led Smith to the realization of the need for an organic coevolution of individual and society in a stage-wise process of accumulation of ethical system of values from one generation to next. Although it is possible for any given society to move forward or stagnate and even regress, the benevolence of the invisible hand of the "Author of nature" guides the totality of humanity in its movement toward the ideal human society. Compliance with and commitment to a set of values—virtues of prudence, concern for other people, justice and benevolence—would ensure social order and cohesion

1.7 Smith and Arrow

At the beginning of the second half of the twentieth century, Kenneth Arrow, who was to win a Nobel Prize, and two of his coauthors, Gerard Debreu and Frank Hahn, produced an elegant model that mathematically modeled Smith's conception of a centralized economy. As this effort was primarily analytic, it abstracted from much of the wellspring of Smith's thought on the institutional scaffolding of the economy. Nevertheless, a crucial dimension of Smith's insight was not only preserved but analytically demonstrated.

In Smith's conception, in an economy that relied on the market within the moral-ethical framework as envisioned in *The Theory of Moral Sentiments*, members of society shared the risks of the economy. His insight into specialization and division of labor showed how efficiency and gains from trade are possible if the risks of economic activity are shared.

The work of Arrow (1971), Arrow and Debreu (1954), and Arrow and Hahn (1971) led to the important result that in a decentralized market economy, the best allocation allows risk to be shared according to the ability to bear it. Two key assumptions of this work were complete contracts and complete markets. The first meant that it was possible to design transaction contracts that cover all contingencies. The second meant that there was a market available in which every conceivable risk could be traded or insured.

Crucially, in this optimal risk allocation (sharing) model, all future payoffs to transactions were contingent on the outcome of the project subject of the transactions. That is, there was no ex-ante determined rate of return, all returns were contingent on outcome of activity being financed. While not stated explicitly in his analytic work, Arrow subsequently made clear that it is "possible that the process of exchange requires or least is greatly facilitated by the presence of several . . . virtues (not only truth, but also trust, loyalty and justice in future dealings. . . . The virtue of truthfulness in fact contributes in a very significant way to the efficiency of the economic system . . . ethical behavior can be regarded as socially desirable institution which facilitates the achievement of economic efficiency in a broad sense" (Arrow 1972, 345–346). For example, if the institution of trust is strong in an economy, the universe of complete contracts can be replicated by simple contracts entered into by parties stipulating that terms and conditions of the contracts would be revised as contingencies arise. Arrow was to place emphasis on trust as the lubricant of the economy (Arrow 1974). Despite Arrow's attention to some important elements of the institutional structure that were integral to Smith's vision of an economy, the economics profession developed its own vision of that economy focusing primarily on two concepts of "invisible hand" and "self-interest." The first was mentioned only once in *The Wealth of Nations* (see Smith 1976, 456), and the manner in which the second was used by economists has been referred to by Vivian Walsh (2000) as "vulgar . . . misunderstanding" of what Smith meant by "self-interest."

This narrowing of Smith's view was subject of rather sharp criticism by Amartya Sen (1982, 1987), who suggested that: "Indeed, it is precisely the narrowing of the broad Smithian view of human beings in modern economics that can be seen as one of the major deficiencies of contemporary economic theory. This impoverishment is closely related to the distancing of economics from ethics" (Sen 1987).

1.8 Smith and Ethical Rules

A careful reading of *The Theory of Moral Sentiments* and *The Wealth of Nations* provides support for Sen's position. Even beyond Sen's spirited criticism of economists' misunderstanding of Smith's self-interest motive is the latter's insistence on the need to comply with "general rules of conduct" that

> Are the commands and laws of the Deity, who will finally reward the obedient, and punish the transgressor of their duty. . . . When the general rules which

> determine the merit and demerit of actions comes thus to be regarded as the laws of an all-powerful being, who watches over our conduct, and who, in a life to come, will reward the observance and punish the breach of them—they necessarily acquire a new sacredness from this consideration. That our regard to the will of Deity ought to be the supreme rule of our conduct can be doubted of by nobody who believes his existence. The very thought of disobedience appears to involve in it the most shocking impropriety. How vain, how absurd would it be for man either to oppose or to neglect the commands that were laid upon him by infinite wisdom and infinite power. How unnatural, how impiously ungrateful not to reverence the precepts that were prescribed to him by the infinite goodness of his Creator, even though no punishment was to follow their violation! The sense of propriety, too, is here well supported by the strongest motive of self-interest. The idea that, however, we may escape the observation of man, or be placed above the reach of human punishment, yet we are always acting under the eye and exposed to the punishment of God, the greatest avenger of injustice, is a motive capable of restraining the most headstrong passions, with those at least who, by constant reflection, have rendered it familiar to them (Smith 2006, 186–189).

Consideration of the above quotation as well as the rest of *The Moral Sentiments* leads to at least three observations. First, this is the Smith who has been ignored by the economics profession. The Smith of economics is the author of the self-interest motive that is the basis of utility and profit maximization at any cost to the society, including the impoverishment and exploitation of fellow human beings. Even one of his most ardent of supporters, Amartya Sen, has ignored the Smith of the above quotation. Second, Smith makes clear in *The Theory of Moral Sentiments* that compliance with the rules prescribed by the Creator and with the rules of the market was essential to his vision. Third, it is also clear that Smith considers the internalization of rules—being consciously aware of ever-presence of the Creator and acting accordingly—as crucial to all human conduct, including economics. A careful reading of *The Theory of Moral Sentiments* shows that Smith shares some of the fundamental institutional scaffolding of Islam: belief in One and Only One Creator; belief in accountability of the Day of Judgment; belief in the necessity of compliance with the rules prescribed by the Creator; and belief that justice is achieved through full compliance with these rules.

1.9 An Arrow-Debreu Economy

An economy in which there are contingent markets for all commodities—meaning that there are buyers and sellers who promise to buy or sell given commodities "if any only if" a specified state of the world occurs—is called an *Arrow-Debreu economy*. In such an economy, it is the budget constraint of the participants that determines how much of each contingent commodity at prices prevailing in the market they can buy. Because these commodities are contingent on future states, they are risky. Therefore, the budget constraint of individuals determines the risk-bearing ability of each market participant.

Arrow himself recognized that requiring such a market is unrealistic. "Clearly, the contingent commodities called for do not exist to extent required, but the variety of securities available on the modern markets serve as a partial substitute" (Arrow 1971). Such securities, referred to as *Arrow Securities*, whose payoffs could be used to purchase commodities, would reduce the number of markets required while replicating the efficiency of risk allocation of complete contingent markets. Associated with complete markets are complete contracts. These are agreements contingent on all states of nature. In the real world, not all contracts can cover all future contingencies. Therefore, they are said to be incomplete contracts and may indicate inefficiencies in exchange. However, as suggested earlier, optimal contracts can be devised provided there is mutual trust between the parties to the contract. That would be a simple contract with provisions for modification of terms and conditions should contingencies necessitate change.

A compelling case can be made that insofar as the financial instruments are Arrow Securities, that is, their payoff is contingent on the "state of nature" (i.e., dependent on the outcome, not on fixed, predetermined interest rates and represent risk sharing), this ideal system would have many characteristics of an ideal Islamic system (Mirakhor 2009, 2010). However, not all Arrow Securities would satisfy *Shariah* requirements as some may well represent contingent debt contracts to deliver a fixed predetermined amount of money if a given state of world occurs. These may not, therefore, represent ownership claim either. Shares of common stock of open corporations do meet these requirements. They are residual ownership claims and receive returns contingent on future outcomes; they are "proportionate claims on the payoffs of all future states" (Fama and Jensen 1983). These payoffs are contingent on future outcomes. Stock markets that are well organized, regulated, and supervised are efficient from an economic point of view because they allocate risks according to the risk-bearing ability of the participants. In essence, this is the contribution of the Arrow-Debreu model of competitive equilibrium (1954; see also Arrow 1971), according to which efficient risk sharing requires that the risk of the economy are allocated to market participants in accordance with their "respective degree of risk tolerance" (Hellwig 1988).

1.10 What Happened to the Smith-Arrow Risk-Sharing Ideal?

The economic/financial system envisioned by Smith and analytically modeled by Arrow and his colleagues did not materialize. By all counts, this was not because it was altogether unrealistic and not implementable but because the whole project was derailed. Instead of optimally sharing the risk of the economy, the financial system ended up shifting it. The process began in the 1980s and culminated in the crisis of 2007/2008.

As mentioned earlier, what Arrow-Hahn and Arrow-Debreau set out to do was an analytically rigorous demonstration of the proposition that "a decentralized economy motivated by self-interest would be compatible with a coherent disposition of economic resources that could be regarded, in a well-defined sense, as superior to a large class of possible alternative disposition . . ." (Arrow and Hahn 1971, vi–vii). But, as Evensky