

# Islamic Financial Engineering and Its Role in Financing the Real State Sector

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Received: 14/09/2023

Accepted: 12/11/2023

Published: 01/12/2023

## Abstract:

This study aims to conduct an interview between the most important Islamic and traditional financial engineering products in financing the real estate sector, by choosing the mortgage-backed securities system representing the traditional economy and Islamic bonds representing the Islamic economy, and the study also aims to highlight the most important financing sukuk products for the real estate sector. Derived from previously known contracts using reverse engineering, and we can call them named sukuk and some of them were newly invented, such as housing certificates adopted by Turkey, and it was the first to issue sukuk in that form according to Sharia controls, which reflects the spirit of Islamic financial engineering. It was concluded that the most important characteristic of Islamic financial engineering products is strategic planning related to reality, whether in the field of their innovation and development or in the field of their use, such as the Turkish experience in housing certificates that started from a realistic problem "housing crisis", and the researcher recommends the need to experiment with Islamic products, especially in Algeria as it is, The case with traditional product experiences.

**Key Words:** financial engineering; mortgage-backed securities system; Islamic bonds; real estate sector.

**Tob Regul Sci.™ 2023 ;9(2): 3404-3418**

**DOI : doi.org/10.18001/TRS.9.2.219**

## 1.Introduction:

All financial markets in the world seek to develop their products in line with the rapid development in the fields employed in its use, and because the fields are not limited to a specific area, they also need certain tools, but what is worth noting is that exaggeration in diversification and innovation without referring to or relying on the real facts on the ground becomes nothing but financial futility that causes crises that do not need examples or reminders. What must be taken into account through the above is relying on real numbers and information that reflect

reality when innovating. In addition to adopting Sharia controls when talking about creativity and innovation in the Islamic economy. This does not mean that Islamic law restricts freedom of innovation in the field of Islamic financial transactions; the rule is "the origin of transactions is permissibility." What is only mentioned in the text is prohibited, such as avoiding usury and trading in debts. This era is witnessing a rapid and extraordinary development, which requires the Islamic nation to keep pace with it without alienating itself from its personality. What the Turkish government did is considered a real innovation when issuing housing certificates, the features of which I will mention in the research paper. Although Islamic banking is generally weak in the Republic of Turkey, this did not prevent it from inventing realistic solutions that are considered to its credit. By adopting the principle of gradualism without rushing to open up without studying, so as not to fall into the legal risks that the Malaysian market suffered from, for example, or even economic setbacks; such as the setback of the Emirati Nakheel Sukuk.

### **1.2 The problem of the study.**

According to what was stated in the introduction, the problem of our paper appears, which revolves around: Ways to develop Islamic financial engineering products, and the extent to which they imitate traditional products in financing the real estate sector?

### **1.3 The hypotheses of the study.**

To gather the scattered and dispersed research problems throughout it, we will adopt a set of hypotheses first as a basis for launching and specifically for the major research features, and second to test those hypotheses truthfully or refutably.

Based on that, we present two hypotheses, which are:

Traditional financial engineering in real estate sector financing is based on the principle of interest, which makes it contradict the principles of Islamic financial engineering.

In order for Islamic financial engineering experiments to succeed, they must have an innovative approach that avoids the legal risks and dependence on the traditional economy in the simulation approach.

### **1.4 Research Methodology.**

In line with the nature and description of the topic, I followed the descriptive analytical approach by describing the details of the topic with a focus on the most important formulas of traditional engineering, which is the mortgage-backed securities system used in financing the real estate sector, and the most important formulas of Islamic financial engineering in financing the real estate sector, which are the Ijarah and Musharaka Sukuk formulas, with an analysis of the two formulas from a jurisprudential and economic feasibility perspective, along with housing certificates.

In addition to the comparative approach, which is necessary to measure the difference between Islamic Sukuk directed to finance housing and mortgage bonds, which are also considered a financial tool directed to the same sector using a system known as the mortgage-backed securities system.

### 1.5 Research Objectives.

This research seeks to achieve a set of objectives, which are:

\*Defining Islamic financial engineering products and the most important approaches used in developing them.

\*Explaining the effectiveness of financing using Islamic financial engineering products.

\*Comparing the impact of traditional products and those derived from an Islamic background on their economic feasibility.

\*Focusing on the importance of innovation in Islamic financial engineering development approaches, highlighting its characteristics.

## 2.The concept of Islamic financial engineering.

Diversifying the financial portfolio with the most powerful tools is an urgent necessity to activate the financial market without neglecting to link it to legitimacy to avoid various risks. The following is a definition of diversification mechanisms and approaches.

### 2.1 Definition of financial engineering:

From the linguistic definition of the term's vocabulary, it is a compound name of three words; Engineering: which is the design and construction on scientific bases, and in the past it was called by those who estimate the appropriate digging location for water channels. Finance: which is related to money and related to it. There is no need to define the word "Islamic" as it is famous for science, and thus the definition of Islamic financial engineering from a linguistic perspective is; the design and construction on scientific bases for everything related to money according to the controls of Islamic Sharia.

In the terminology of Islamic economic thinkers: it is a group of activities that include the design, development and implementation processes for each of the innovative financial tools and operations in addition to formulating creative solutions to financing problems according to the framework of Islamic Sharia controls, and thus the linguistic and technical definitions do not differ in terms of meaning in the concept of Islamic financial engineering.

## 2.2 A historical overview of the development of the concept of financial engineering.

In contemporary history, the legal history of Islamic financial engineering, specifically Islamic bonds and securitization, dates back to 1986, when the International Islamic Fiqh Academy held a session to emphasize the importance of the subject and assigned specialized researchers to study the subject in October of the same year. The truth is that innovative solutions to financial problems have been known in reality since the beginning of legislation, which is reinforced by the rule that “the original in transactions is the solution.” The Noble Law did not prohibit innovation in the exits of the financial industry, but on the contrary, there are some indications - albeit few - of the use of the financial industry since the beginning of Islam. For example, salaries and provisions were paid with bonds. Al-Yaqubi says, “Umar ibn al-Khattab was the first to issue and seal the bottom of the bonds.” References increase after that, especially in the fourth century AH, when the bond was used in government departments to pay the salaries of the army in particular.

## 2.3 Securitization as a mechanism for creating Islamic financial engineering products.

Securitization was named thus to distinguish it from securitization and securitization, which depend on traditional bonds and securities, respectively. Jurists have agreed to call securitization operations in the Islamic framework as securitization operations, for two reasons:

\* The word securitization is derived from the word Sukuk, which represents the Islamic alternative to the word bonds, and it implicitly means dealing with a financial instrument based on debt and forbidden interest.

\* The word securitization in traditional financial thought is based primarily on the debt component, which is what Sharia prohibits in exchange for differential value.

Based on the above, securitization can be defined as follows: "Securitization is the process of converting assets that are legally acceptable into financial instruments that are separated from the entity that created them and are tradable in a financial market, provided that their subject matter is mostly real estate, and with specific terms with an unspecified or specified return, but not free of risk".

The process of issuing sukuk includes initial steps called issuance organization, which can be summarized as follows:

Preparing the vision and organizational structure that represents the investment mechanism through sukuk, studying the legal, procedural and organizational issues, and studying the feasibility study, and including all of this in the issuance prospectus.

Representing the Sukuk holders through establishing a special purpose company.

Offering Sukuk for subscription with the aim of raising funds to finance the assets represented by the Sukuk

Marketing the Sukuk.

Undertaking to cover the subscription by finding a party that undertakes to cover the unsubscribed portion.

#### **2.4 Development of the production of Islamic financial engineering products.**

Despite the importance of Islamic financial products and their primary function in directing the economy towards the Islamic direction, the amount of interest in studying them, developing them and achieving their goals is absolutely not commensurate with that importance. In terms of numbers, the amount allocated to research and development of Islamic products by financial institutions is almost non-existent compared to the profitability and financial performance of these institutions. Islamic banking in general is living its golden age, attracting the attention of major financial consulting institutions, law firms, research and publishing institutions to issue periodic reports that follow the developments of this industry, from the McKinsey & Company Competitiveness Report on Islamic Banking to the reports of Moody's and Standard & Poor's, two of the most famous credit rating institutions, to the reports of Bloomberg and the Financial Times. The reason for this is the vitality and activity of this industry these days.

### **3. Approaches to the development of Islamic financial engineering.**

Due to the youth of Islamic financial engineering tools and the modernity of their emergence, they have generally relied on simulating traditional engineering in tools, but that has never prevented engineering innovations in money thanks to the wealth left behind by our venerable predecessors of scholars and thanks to the efforts and diligence of researchers and specialists in financial engineering with Sharia controls.

#### **3.1 Reverse financial engineering:**

One of the most prominent advantages of this method is the ease and speed of developing products, as it does not require much effort and development, but rather merely following and imitating popular products in the market. Also, experimenting with these products would reduce the burden of studying and marketing these products, and thus they would be merely imitations and imitations of traditional financial products.

This method also has disadvantages, which we summarize in the following points:

- Sharia controls become mere formal restrictions with no reality behind them or economic value behind them. This weakens customers' conviction in Islamic products, and makes Islamic financing a matter of doubt and suspicion. Rather, these controls become a burden and an obstacle for financial institutions, as they do not achieve any added value, but rather an

additional cost. In this case, it is natural for financial institutions to pass this cost on to the customer, so that the imitated Islamic products are ultimately more expensive than the traditional products, although they ultimately achieve the same result.

- Traditional products fit the traditional industry and try to address its problems. Imitating these products requires exposure to the same problems, which in turn requires simulating more traditional products so that the Islamic financial industry eventually suffers from the same problems and crises that the traditional financial industry suffers from.

- Any product of the traditional financial engineering industry is part of an integrated system of tools and products based on a specific philosophy and vision. Trying to imitate the essence of this system and its elements is what makes the Islamic financial industry threatened with losing its identity and becoming a wholesale subordinate to the traditional industry, and thus all the problems that the traditional industry suffers from will in turn be transferred to the Islamic financial industry. Instead of Islamic finance being the solution to the economic problems that the world suffers from today, it unfortunately becomes a mere echo and reflection of these problems.

### **3.2 Innovative Financial Engineering:**

It is the subject of financial engineering in terms of research, study, innovation, implementation and follow-up, whether to create new products, new financial instruments, new financial and financing mechanisms and formulas, or to redevelop what is applied in the market to suit the constant changes in the world of financial markets. This approach does not come out of nowhere or is applied merely by wishful thinking, but rather requires a real will based on many interconnected conditions, perhaps the most prominent of which are:

- The efficiency of the human element in terms of formation and training - Creating an advanced environment that serves the field of research and development.

- Studying global markets and extrapolating the future from the need for new financial products and instruments.

- Continuous study of customer needs and work to develop the necessary technical and artistic methods for them

Here it is necessary to mention an important matter that Islamic law, which works according to a general approach, has directed an invitation to Muslims to innovate and urged them to serve the interests of society and achieve the objectives of Islamic law. This is evident in the Holy Quran, where God Almighty called us to work without specifying its type, essence, purpose and means. God Almighty said: {And say, "Work, and God will see your work, and so will His Messenger and the believers. And you will be returned to the Knower of the unseen and the witnessed, and He will inform you of what you used to do." [At-Tawbah: 105]} The invitation here is renewable

and not fixed at a specific time or place, taking into consideration the changes that occur in every age, which must be met Muslims work to keep up with the world we live in and take control of things. One of the examples of creativity in Islamic financial products is what the Turkish government uses for housing, which is "housing certificates," which we will discuss in the second part of the paper.

### **3.3 Traditional financial engineering.**

The formulas of financial engineering products vary and are specialized according to the field in which they are used, one of these fields is the real estate sector; where financing methods for the same sector differ in the use of different products in both structure and purpose. In the arena of traditional financial engineering, the mortgage-backed securities system stands out as the most famous method for financing the real estate sector, and perhaps what increased its fame was the crisis of this system in the summer of 2008.

#### **3.1 Definition of the mortgage-backed securities system as the most prominent designs of traditional financial engineering:**

The beginnings of this system began with the establishment of the Mortgage Refinancing Company in 1977 as an intermediary required by the mortgage-backed securities system. This system is known as those securities that are issued in the financial market, after placing all the real estate loans that have been granted and that have common characteristics in a "pool", then this pool is sold, backed by real estate mortgages at a unified interest rate in the secondary market. It is well known that the mortgages that support this type of securities have the same characteristics in terms of the interest rates due, the monthly installments, the time period allocated for amortizing the loan, etc., so that the pool can be considered as a single mortgage loan. The bank that is assigned this process to manage this type of mortgage loan has the primary task of collecting the monthly dues, which are the amount of interest, the installments related to the capital or the borrowed amount, and transferring these dues immediately to the owner of the real estate securities after deducting the management commission, the insurance policy and all other burdens agreed upon in the management contract.

#### **2.3 Disadvantages of the mortgage-backed securities system:**

The first thing that comes to mind when hearing the term mortgage-backed securities is the mortgage crisis of the summer of 2008 in the United States of America. Certainly, the causes of the American housing crisis cannot be limited at all, as they have accumulated and multiplied, making its repercussions terrifying. In this section, we will try to limit ourselves to the most important disadvantages directly related to the mortgage-backed securities system that caused the crisis:

The government's encouragement of the mortgage lending sector, which led to facilitating the mortgage lending process in this manner by banks, increasing the number of the latter, and mortgage lending companies selling debts and then mortgaging them to obtain new loans.

Inadequate financial regulation and confusion of public budgets with the excessive accumulation of debts of financial institutions, the household sector, and governments.

The risk of prepayment, arranged and unarranged, is high. The first is due to fluctuations in market interest rates, which are usually unsatisfactory for the investor, while this risk is considered to be the inability to pay as a result of deteriorating economic conditions such as recession and others. As for the second unarranged risk related to prepayment, it is also usually the result of changes in the speed of prepayments, which are not related to fluctuations in interest rates for real estate loans in the market.

The use of short-term financing to finance real estate mortgages issued by mortgage originating bodies with capital below the required level. This forced them to exit the market after their inability to sell financial bonds backed by their real estate mortgages.

These reasons that partially caused the crisis cannot be immune from any country that uses this system, so it is necessary to take very strict measures and establish institutions capable of dealing efficiently with these papers; from rating and transparency institutions for real estate securities.

#### **4. Islamic financial engineering products financed by the real estate sector.**

When talking about the products resulting from Islamic financial engineering, most of those interested in the field of real estate financing using Islamic formulas highlight three main ways to finance the real estate sector using Islamic financial engineering products, which are: Ijarah Sukuk, Musharaka Sukuk, and housing certificates.

##### **4.1 Islamic leasing certificates.**

Ijarah certificates are "documents of equal value upon issuance, indivisible, and tradable through commercial channels, representing common shares in the ownership of leased assets, or ownership of benefits or services from a specific or described asset in the conscience."

Because leasing certificates are the most important among other Islamic certificates, their importance cannot be limited, but in general, it can be said that the most important points of their importance lie in:

- Their suitability for financing fixed assets, as their benefit is benefited from in exchange for the rental amount without bearing maintenance expenses and ownership risks from falling prices and so on.

- Helping the state cover its budget deficit, by offering them to meet its needs in financing its development projects, due to their relative stability in terms of leased assets and the rent

achieved. If the state issues them, in addition to the above, they enjoy high confidence among those dealing with them, so they are suitable to be a good alternative to treasury bonds in the monetary policy of the central bank through what is called traditional open market operations.

- The ability to collect and mobilize savings from different categories due to the diversity of terms and categories in terms of financial value, and the diversity of purposes as well, in addition to its liquidity derived from the possibility of trading it in the secondary market, and it is also not exposed to interest rate risks; because it does not deal with it at all, with no exposure to inflation risks, but is positively affected by it, because these bonds represent real assets in the form of assets and services whose prices rise with the rise in the general price level, which leads to an increase in the returns of the bonds representing those assets (assets and services).

- Financing silent projects for the public benefit, which the government does not wish to establish on the basis of profit for an interest it deems public, in this case the government is the tenant from the bond holders who are the owners of these assets rented to the state. Then the government, as a tenant, permits the project for the public benefit. According to the Accounting and Auditing Organization for Islamic Financial Institutions, Sukuk Al-Musharaka are “equal value documents issued to use their proceeds in establishing a project, developing an existing project, or financing an activity based on a contract of participation, and the project or assets of the activity become the property of the sukuk holders within the limits of their shares, and Sukuk Al-Musharaka are managed on the basis of a company, on the basis of Mudarabah, or on the basis of investment agency”.

#### 4.2 Sukuk Al-Musharaka:

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The Islamic economy is distinguished from the positive economy in that it is a participatory economy, in which effort and work are mixed with capital in the process of investment, operation and income generation, and this principle is the most important thing that distinguishes Islamic banking.

Removing the suspicion of usury from the field of investment, to achieve a main goal of Islamic investment, which is to observe the provisions of Islamic Sharia in transactions, in addition to what it achieves in the interest of individuals, and justice between them, as the

partners in winning and not winning are equal, if God provides profit between them and if He prevents it, they are equal in deprivation, and this is the ultimate justice.

Money development is done through the effort of the individual alone. The individual may not be able to work by himself, or his money may not be enough to finance a project he wants. The individual may have effort and capabilities but no money, or he may have money but no ability to work. Then, the huge contemporary projects require concerted efforts and pooling of funds to form capital that can meet the requirements of modern factories and the like. Hence, the role of the bank in financing projects emerged because it is more financially efficient due to the privilege of accessing depositors' money. The Sharia has provided provisions that are capable of organizing the gathering of funds, the exertion of efforts, or the gathering of funds and efforts together through various partnership contracts.

Qualifying administrative competencies that can establish and manage projects, in addition to being suitable for financing new goods and technology.

High employment of all resources and financing capacities in the bank with its three terms - medium, short and long - unlike other financing formulas based on debt that are based on short-term financing to ensure its liquidity, which means that the participation formula allows the bank to secure employment opportunities for all its resources and capacities, which leads to increasing its return.

#### 4.3 Housing Certificates:

This formula is considered one of the modern formulas that reflect the beauty and magnificence of creativity in Islamic financial engineering and is currently unique in its use by the Republic of Turkey, and has achieved success in financing the real estate sector in a good way.

The structure of housing certificates has been subject to modifications since its inception, thanks to its considerable success, to make it better and more effective in the financial market, and the structure of housing certificates is considered a novelty that differs from the known contract structures.

The issuance, trading and maturity of housing certificates are subject to the Real Estate Certificates Law, which was amended in July of last year. The law consists of 20 articles that outline the features of housing certificates, the conditions for their issuance and their maturity dates. We will try to summarize the most important basic features of housing certificates in the following points:

-Housing certificates represent specific parts of a real estate project or independent units representing a specific area. The certificate holder does not know exactly which apartment he will own. All he knows is that he will get an apartment in a specific area only at the lowest prices.

-Housing certificates can be issued to one of the joint-stock companies established for this purpose or in partnership with at least one partner subject to administrative control in accordance with the relevant regulations issued by the Capital Market Board of Directors.

-The Ministry of Housing and Development Administration (TOKI) through its bank establishes a joint stock company and its subsidiaries to determine the district in which real estate projects will be implemented for financing with housing certificates by the contractor sponsoring the project.

-Investors who have a sufficient number of certificates can own an apartment, and those who do not have a sufficient number of certificates can calculate it as an initial payment and complete the remaining installment of the housing price in cash.

## 5. Analysis and interpretation of the results:

In terms of the general principle, the idea of Islamic bonds is no different from the idea of mortgage bonds, but the former may have been the result of the ideas of the latter to replace it; the purpose of the two papers is to trade in the financial market, and despite the similarity in the general purpose, there are many fundamental differences between the products and their impact on the sector to which the financing is directed, perhaps the most prominent of which we will summarize in the following points:

- Legitimacy; which is the most important factor in Islamic countries where the majority of the population professes Islam, as the structure of mortgage bonds is subject to the interest system prohibited by the text of the Qur'an in the Almighty's saying: {And Allah has permitted trade and forbidden usury}, which affects the effectiveness of this system in its unacceptability to the vast majority of Muslim peoples, both taking and giving.
- Realism; This element becomes clear when explaining the purpose of the products. Although the primary purpose of the products is profitability, what distinguishes the Islamic product represented by sukuk from other bonds is that Islamic sukuk depends on real assets, while bonds are based on fictitious profit rates that have been inflated over time without any real growth in those assets.
- Diversity; Unlike traditional real estate financing products, Islamic products vary from leasing and participation sukuk, housing certificates, and others that we have not discussed, while traditional products vary in the same circle from mortgage bonds with some minor structural changes to the bonds.
- Flexibility and suitability; This element is no less important than its predecessors in terms of importance and impact on development. As is known, the real estate sector itself is diverse and varied. For example, leasing sukuk are suitable for those who do not want to take risks and prefer a fixed return while maintaining ownership of the asset, and participation sukuk are suitable for

infrastructure through diminishing participation to preserve sovereignty, and using housing certificates to build housing units intended to be sold in installments...etc.

These are the most prominent points in which the difference in terms of influence between the producers of Islamic and traditional financial engineering is evident.

## 6. Conclusion.

Financial engineering is considered the revolution of the century in the speed at which it proceeds, and the money is managed as much as it is a beast in a cage that if unleashed can destroy everything, this is unfortunately what traditional financial engineering has fallen into with its various tools of accelerating economic and financial life and activating and enriching the financial market without taking long to spoil everything. This remains the most prominent challenge to Islamic financial engineering and the extent to which it can remain within its controls and avoid its legal risks.

At the end of our research paper, we have concluded several results that we summarize in the following points as conclusions and suggestions:

- The history of Islamic civilization is full of achievements and innovations in various specializations that need to be developed and modernized by specialized researchers, especially in the financial and economic field, such as the structures of various sukuk.

- If financial instruments are not controlled by rules and principles and subjected to constant monitoring, this will undoubtedly be just financial futility that has no benefit except for imaginary activity at the expense of real activity.

- Imitating traditional engineering products and re-adjusting them to be Islamic is not without the risk element, as importing the structure automatically brings with it its effects. Benefiting from the ease and previous experience of the product has a consequential cost, which is the crisis experience.

- Islamic financial engineering products need strategic planning linked to reality, whether in the field of innovation and development or in the field of use, such as the Turkish experience in housing certificates, which started from a real problem "the housing crisis" and finding a realistic, effective and economic innovator "housing certificates" to crown the fruits of the project after its experience with success.

- Islamic financial engineering products need functional integration among themselves to ensure success for the best results at the lowest costs.

Last but not least, the effort of this research paper remains an imperfect human effort, in which we tried to highlight the most important basic features of Islamic financial engineering and ways to develop it. We concluded the research with a model product representing Islamic financial

engineering tools, which is "housing certificates", which reflects Islamic creativity in its products and achieves its renaissance based on its principles and reality.

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