الجمهورية الجزائرية الديمقراطية الشعبية
المركز الجامعي عبد الحفيظ بوالصوف ميلة
معهد العلوم الاقتصادية والتجارية وعلوم التسيير
قسم العلوم المالية والمحاسبة

الميدان: العلوم الاقتصادية والتسيير والعلوم التجارية

الشعبة: علوم مالية ومحاسبة

التخصص: مالية المؤسسة

مذكرة مكملة لنيل شهادة الماستر بعنوان:

Assessment Of The Utilization Of Financial Engineering Tools in The Malaysian Financial Market

إعداد الطلبة		الأستاذ المشرف
1	بوشلـيف ياسيـن	منـاع ريـمة
2	بوالبعـير مـراد	

لجنة المناقشة:

اسم ولقب الأستاذ(ة)	الصفة
صبريـنة عون	رئيسا
منـاع ريـمة	مشرفا ومقررا
ضافري ريمة	ممتحنا

السنة الجامعية 2024/2023

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بسم الله الرحمن الرحيم

Dedication

All praise be to Allah, the Almighty, for His grace and assistance in completing this research.

To the one who gave me everything he had so that I could fulfill his hopes, to the one who always pushed me forward to achieve my goals, to the person who embodied humanity in its entirety, to the one who dedicated himself to my education with great sacrifices, to my first school in life, my dear father, may Allah have mercy on him and grant him the highest place in paradise.

To the one who selflessly gave her all, my mother, who endured everything, who nurtured me with care and was my support in times of hardship, whose prayers for my success never ceased, who followed my every step in my work, to whom I found solace whenever I remembered her smile, to the source of affection, my dearest mother, may Allah reward her with the best of rewards in both worlds.

To my brothers, sisters, and their children who shared the burdens of life with me, to the soul of my friend Issa, may Allah have mercy on him and grant him paradise, to Mourad and all the professors of the Department of Financial Sciences.

To everyone who knows me, near or far, to everyone who helped us complete this research even with a smile, to everyone who believes that the seeds of change and success lie within ourselves before they lie in anything else.

قال الله تعالى: " إن الله لا يغير ما بقوم حتى يغيروا ما بأنفسهم..."

الآية 11 من سورة الرعد.

As Allah the Almighty says, "Indeed, Allah will not change the condition of a people until they change what is in themselves..." (Quran, 13:11).

To all of these, I dedicate this work.

Gratitude And Appreciation

"In the name of Allah, the Most Gracious, the Most Merciful.
"So remember Me; I will remember you. And be grateful to Me and do not deny Me".

"فاذكروني أذكركم واشكروا لي ولا تكفرون"

We thank Allah Almighty for His abundant blessings. He, blessed and exalted, has granted us health and strength, and has been our support and assistance. We praise Him, the Almighty, for granting us success and guidance, and for giving us the wisdom and perseverance to prepare this research.

We extend our heartfelt thanks and appreciation to our supervisor, Mrs. **Menaa Rima**, to whom we owe all our respect and gratitude for her valuable guidance and advice. We also thank all the professors of the Department of Financial Sciences from whom we have received beneficial knowledge and practical work to continue our journey. We are grateful to all the staff, both workers and administrators, and to everyone who has helped us and has not hesitated to provide us with valuable academic advice.

May Allah not let the efforts of the good-doers go to waste. And all praise is due to Allah, the Lord of the worlds."

Abstract:

This research aims to highlight the most important traditional financial concepts and Islamic financial engineering, evaluating the use of their tools through new securities, bonds, sukuk, or stocks to meet the needs of those seeking renewed financing tools that current methods fail to fulfill. This includes innovating new solutions for financial management, such as liquidity or debt management, and preparing financing formulas for specific projects that fit the surrounding conditions. Given the changes in the world of finance and business, a range of financial engineering tools have been introduced to evaluate the position of existing financial instruments, such as stocks and bonds of various types. Among the most prominent of these tools are financial derivatives, which are innovative financial instruments that derive their value from underlying financial instruments and are used for risk management.

Among the most important financial derivatives are option contracts, which provide the holder with the right to exercise specific types of related contracts. We also find futures and forward contracts, swaps, and securitization, which are used as tools for managing distressed debt, in addition to determining their significance.

Keywords : Financial engineering, Securitization, financial derivatives, bonds, sukuk

Résumé :

Cette recherche vise à mettre en lumière les concepts financiers traditionnels les plus importants ainsi que l'ingénierie financière islamique, en évaluant l'utilisation de leurs outils à travers de nouveaux titres, obligations, sukuk ou actions pour répondre aux besoins de ceux qui recherchent des outils de financement renouvelés que les méthodes actuelles ne parviennent pas à satisfaire. Cela inclut l'innovation de nouvelles solutions pour la gestion financière, telles que la gestion de la liquidité ou de la dette, et la préparation de formules de financement pour des projets spécifiques adaptés aux conditions environnantes. Étant donné les changements dans le monde de la finance et des affaires, une gamme d'outils d'ingénierie financière a été introduite pour évaluer la position des instruments financiers existants, tels que les actions et les obligations de différents types. Parmi les plus importants de ces outils, on trouve les dérivés financiers, qui sont des instruments financiers innovants tirant leur valeur des instruments financiers sous-jacents et utilisés pour la gestion des risques.

Parmi les dérivés financiers les plus importants, on trouve les contrats d'options, qui offrent à leur détenteur le droit d'exercer des types spécifiques de contrats connexes. Nous trouvons également des contrats à terme et des contrats à terme standardisés, des swaps et la titrisation, qui sont utilisés comme outils de gestion de la dette en difficulté, en plus de déterminer leur importance.

I - Preliminary Chapter

I-1- Introduction :

The economic developments have led to rapid growth in the size of financial markets, branching out to the extent that spatial framework is no longer a fundamental condition for the establishment of such markets, especially with the existence of various modern means of communication. This has resulted in the emergence of local and international financial markets, where financial transactions are conducted easily and conveniently regardless of their size. Investing in stocks and bonds is considered one of the most attractive investment areas in the securities market for many investors. However, the evolution of the financial industry with the emergence of the concept of financial engineering aims to introduce new financial instruments through which to improve the return on investment at a certain level of risk that the investor is exposed to or reduce the size of risk at a certain level of return. One of the most prominent innovations introduced by financial engineering is known as financial derivatives, which are used as a tool for managing investment risks. Their use has expanded, leading to the creation of different classifications within the financial market, including derivative markets. Thus, financial engineering has become a developmental process that contributes to activating securities by creating new financial products used in pricing and managing the risks of securities trading.

I-2- Research Problem :

Efficient emerging financial markets are the cornerstone of optimal resource allocation and directing them towards productive projects and more profitable investments. The Malaysian financial market is considered one of the most important emerging financial markets and one of the most successful pioneering experiences, as many researchers have given it attention in their scientific research, especially regarding the aspect of financial engineering. Based on the above, the problem statement of our study can be formulated as follows: How is the utilization of financial engineering tools in the Malaysian financial market evaluated?

I-3- Study Hypotheses:

In order to answer the posed problem, the following questions can be formulated:

- What policies did the Malaysian government implement to promote Islamic finance, and how did these policies contribute to the continuous growth of Islamic assets?
- What was the main factor that attracted both international and domestic investors to Islamic financial instruments in Malaysia?
- How did market education efforts help increase awareness of Islamic finance, and what was the ultimate impact of this awareness on the Malaysian financial market?

I-4- Reasons for Choosing the Topic:

* The nature of the specialization and personal inclination to address the topic due to its novelty, in addition to attempting to apply some personal practical and theoretical knowledge.
* Enriching the university library with new studies and statistics and exploring the intricacies of the topic further.
* The significant importance of the topic, which is considered the fundamental balance for favoring investors' profits both locally and internationally in the capital market.
* The challenge of evaluating different financial engineering tools.
* Attempting to find effective methods for utilizing financial derivatives to benefit both private and public interests in the Malaysian financial market, which implies potential local adoption in Algeria.

I-5- The Timeframe of the Study :

Due to previous studies, we have decided that the research timeframe will be from the latest statistics of financial engineering products in Malaysia in 2015. Therefore, we have adopted the period from 2015 to 2023.

I-6- Importance and Objectives of the Study:

Importance of the Study:

* Financial Performance Analysis: The study contributes to understanding the performance of various financial instruments in the Malaysian financial market and evaluating their efficiency.
* Enriching Academic Knowledge: This study adds to the academic knowledge on how financial engineering can be used to improve the efficiency of financial markets.
* Supporting Decision-Making: The study's findings help investors and decision-makers make informed investment decisions.
* Developing Financial Instruments: The study provides recommendations for developing new financial instruments that align with the requirements of the Malaysian financial market.
* Practical Applications : The results of the study can be used for practical applications in other financial markets, especially in emerging markets like the Algerian financial market.

Objectives of the Study:

* Identify the Economic Functions of an Efficient Securities Market: Understanding the role of securities markets in improving resource allocation.
* Analyze the Impact of Financial Engineering Products: Studying how the inclusion and revaluation of financial engineering products affect investor behavior.
* Evaluate the Effectiveness of Financial Instruments: Analyzing the effectiveness of various financial instruments in improving the efficiency of the Malaysian financial market.

* Provide Recommendations: Proposing recommendations to improve the use of financial instruments in the Malaysian financial market, which can be beneficial for other financial markets.
* Explore Methods to Activate Financial Derivatives: Finding effective methods to activate financial derivatives that benefit both private and public interests in the Malaysian financial market.

I-7- Previous Studies:

* **Nika Pranata:** "Conventional and Islamic Indices in Malaysia: A Comparison on Performance, Volatility and the Determinants", Capital Market Review Malaysia, VOL 07, No:02, 2015.
* **Lacheheb Sadek and Bourish Ahmed:** "Analysis of the Success Factors of the Malaysian Experience in Developing the Islamic Financial Industry," Algerian Journal of Accounting and Financial Studies, Issue 1, University of Kasdi Merbah Ouargla, Algeria, 2015. This study focused on Islamic banking and neglected the aspect of Islamic financial markets.
* **Bouzid Essam:** "An Attempt to Test the Efficiency of the Islamic Finance System in Facing Financial Crises," Doctoral Thesis, Faculty of Economics, Commerce and Management Sciences, Department of Management Sciences, University of Kasdi Merbah Ouargla, Algeria, 2016/2015. Among the topics addressed in this study was the measurement of the financial performance of a number of Dow Jones Islamic indices in four different regions: Europe, Asia, the United States, and the world. The researcher found that the returns of the Dow Jones Islamic index are significantly correlated with the returns of the traditional Dow Jones index. Additionally, the researcher observed higher average returns in Islamic stock indices compared to their counterparts in the four regions, particularly in the period after the 2008 crisis. The researcher did not study financial stock evaluation tools compared to traditional ones.

I-8- Study Structure:

Chapter one: included a general introduction to the research topic, in which the problem was formulated, the main questions were identified, and the conceptual framework of our study was explained.
Chapter two: aimed at providing a theoretical elaboration of the research vocabulary. After ensuring a sound framework, we moved on to the third step.
Chapter three: explained the scientific methodology that conforms to the specificity of the research. Also included the scientific results of the research, which are based on statistical data.
Chapter four: presented the results and recommendations.

II- Theoretical Review

II -1- Definition of Financial Engineering
II -2- Origins of Financial Engineering
II -3- Objectives of Financial Engineering
II -4- Principles of Financial Engineering
II -5- Fields of Financial Engineering
II -6- Financial Engineering Operations
II -7- Financial Engineering Tools
- **-7-1- Traditional Financial Engineering Derivatives**
  - **A- Options Contracts**
  - **B- Forward Contracts**
  - **C- Futures Contracts**
  - **D- Swap Contracts**
- **-7-2-Islamic Financial Derivatives**
  - **A) Sharia-compliant adaptation of options contracts**
  - **B) Sharia-compliant adaptation of futures contracts**
  - **C) Sharia-compliant adaptation of forward contracts**

II -8- Concept of Securitization
- **-8-1- Key Elements and Characteristics of Securitization**
- **-8-2- Methods of Securitization**
- **-8-3- Parties Involved in the Securitization Proces**
- **-8-4- Purposes of Securitization**

II -9- Islamic Securitization (Sukuk)
- **-9-1- Parties to the Sukuk Process**
- **-9-2- Characteristics of Sukuk**
- **-9-3- Characteristics of Sukuk Issuer and Holder**
- **-9-4- Objectives of Sukuk**

II -10- Abstract

Introduction:

The continuous changes in the financial and investment environment have led to the necessity of searching for new financial instruments and products that are cost-effective, carry lower risks, and offer higher returns. This has led to the emergence of modern techniques that keep pace with this evolution and meet the needs of financial and banking institutions through financial engineering.

The emergence of financial engineering and its tools has and will continue to provide multiple and advanced innovation opportunities in the foreseeable and distant future, starting from its role in revitalizing global financial markets. While its primary purpose is hedging and risk transfer, its use has expanded significantly in recent years to include investment and speculation purposes. The ongoing development and increasingly diverse use of new instruments have led to continuous growth so far.

The term "financial engineering" is one of the modern concepts that have entered the world of finance and investment. It refers to the processes of designing, developing, and implementing innovative financial instruments and operations, as well as formulating creative solutions to financing problems. Its definition indicates its potential use in risk management.

Therefore, we will attempt through this discussion to address the various traditional and Islamic financial engineering tools in the financial market, categorize them into traditional, modern, and derivative financial products, and study various traditional and modern Islamic financial products.

II -1- Definition of Financial Engineering:

* The term financial engineering is used to describe the analysis of data obtained from the financial market in a scientific manner. Such analysis usually takes the form of mathematical algorithms or financial models, representing the analytical process designed to enhance the financial operations of an institution through the use of comprehensive models and technical programs. (قندوز، 2008، صفحة 27)

* It encompasses a range of activities including design, development, and implementation of all innovative financial processes and tools, as well as creative solutions to financing problems, all within the framework of financial engineering guidelines. (رضوان، 2005، صفحة 22)

* financial engineering means the creation of new and improved financial products through innovative design or repackaging of existing financial instruments. Financial engineers use various mathematical tools in order to create new investment strategies. The new products created by financial engineers can serve as solutions to problems or as ways to maximize returns from potential investment opportunities. (Bporikar, 2018, p. 42)

II -2- Origins of Financial Engineering: In the mid-1980s, financial engineering emerged as Wall Street began to enlist the help of academics to develop financial market products to address risks and reduce the constraints imposed by the market and the business environment in facing risks. After some British banks opened consulting offices to assist and guide businesses in dealing with risks posed by their clients, this process became known as financial engineering.(لحلو و وليد العايب، 2010)

II -3- Objectives of Financial Engineering: Financial engineering aims to achieve three main objectives, as follows: (Hull, 2012)

Hedging: The purpose of hedging is to reduce risks or protect against the risk of price fluctuations, whether for raw materials, commodities, exchange rates, or securities, through a range of financial products provided by financial engineering.

Risk Management: The primary goal of hedging is risk management and control, achieved through various methods focusing on diversification of financial assets or transferring risks to other parties through innovative products for this purpose.

Speculation: Speculation is the process of trading securities with the aim of making a profit from future price expectations based on information collected, analyzed, or sometimes created by the speculator. It involves buying or selling securities not for investment purposes but to benefit from short-term market value changes. The correlation between the market value of securities and their true value decreases significantly.

Arbitrage: Arbitrage enables some investors to achieve profits that others cannot obtain due to market imbalance. Investors buy low-priced commodities in one market and sell them in another market where the commodity is high-priced, thereby benefiting from the price difference. This process is capable of restoring the market to a state of equilibrium due to an increase in low-priced securities. Through arbitrage strategy, financial engineering aims to create risk-free arbitrage opportunities in an inefficient market, meaning there is disparity in prices among different markets.

II -4- Principles of Financial Engineering:

Financial engineering principles focus on three fundamental concepts: (النجار، 2009، الصفحات 41-42)

*** Real Profit:** Profits should be derived from genuine economic activities rather than non-real activities such as speculation, price inflation, and irregular financial practices.

*** Financing as an Intermediary Activity:** Financing should serve as an intermediary activity for production, aiming to achieve an appropriate return that covers risks.

*** Market Equilibrium:** Achieving equilibrium in the money market is crucial to align with the balance in the goods and labor markets, ultimately leading to full economic utilization of the nation's resources.

*** Long-Term and Short-Term Financial Decision Evaluation:** It is essential to measure the outcomes of financial decisions in both the long and short terms, considering returns, costs, and risks.

*** Alignment of Organizational and Financial Management Goals:** The objectives of organizations should align with the goals of their financial management practices.

*** Financial Institutions as Intermediaries:** Financial institutions, including banks, insurance companies, investment funds, and stock exchanges, should act as intermediaries to facilitate the production cycle.

These principles serve as a foundation for sound financial engineering practices, ensuring that financial decisions contribute to sustainable economic growth and stability.

II -5- Fields of Financial Engineering: Financial engineering covers several fields, including:(جبار و مريمت ، الجزائر)

- Financial services for banks, savings and loan institutions.
- Financial planning for individuals, financial and legal restructuring.
- Investment activities, portfolio management, financial and legal analysis.
- Financial business management, any type of financial and commercial activity for profit or otherwise.
- Providing financial services for real estate offices, investment trustees, and insurance agencies.
- Hedging operations risk coverage, marketing process development, and development of underlying financial market instruments.

II -6- Financial Engineering Operations: Financial engineering aims, through the creation of financial operations, to enhance performance in general. These innovations can be summarized as follows:(محمد و طلبة، 1991)

- Innovations aimed at reducing transaction costs.
- Innovations that provide opportunities to utilize modern technological methods targeting fast transaction execution.
- Innovations aimed at reducing idle cash balances.

II -7- Financial Engineering Tools:

II -7-1- Traditional Financial Engineering Derivatives:

Financial engineering tools are primarily represented by financial derivatives, which are contracts marketed for a future date. They do not require initial investments but a small initial amount derived from the value of the underlying asset at the contract location. Therefore, they are called derivatives. (النجار، المشتقات والهندسة المالية، مصر، صفحة 132)

Characteristics of financial derivatives include:

- They are linked to a specific interest rate, financial instrument, commodity, or foreign exchange rate.
- The value of financial contracts is derived from the current prices of financial assets or commodities at the contract location.
- Financial derivatives are settled at a future date and usually do not require initial investments.
- Financial engineering tools represented by financial derivatives can be divided into the following categories:

A- Options Contracts:

Options contracts are a type of derivative instrument that provides investors with the flexibility to manage risk and speculate on price movements of underlying assets, such as stocks, bonds, commodities, or currencies. Unlike futures contracts, which obligate the buyer to purchase or the seller to deliver the underlying asset at a predetermined price on a specific date, options contracts grant the buyer the right, but not the obligation, to execute the contract. This unique characteristic makes

options contracts a valuable tool for investors seeking to hedge against potential losses or profit from anticipated price movements. (بومدين، 2013، صفحة 129)
These contracts are classified based on the nature of their terms, as follows:

***Option Contracts According to the nature of the terms:**

these contracts are classified according to the nature of the contract term or according to the execution date of the contract as follows:

Call Option Contract: This contract grants the buyer the right to purchase a specific number of securities, commodities, indices, or foreign currencies at a predetermined price at the time of contracting on the last day of the contract. The buyer of this option has the discretion to exercise the option or not, while the option writer executes the options if the buyer desires.

Put Option: This contract gives one party the right to sell a certain number of securities during a specified period at a predetermined price. It is used when anticipating a future decrease in the price of securities.

Binary Option: This contract grants the holder the right to either buy or sell securities subject to the contract. If the prices rise, the holder has the right to purchase, and if they fall, the right to sell.

*** Options by Execution Date are divided into the following** (حنيني، 2010، صفحة 95)**:**

American Option: This option contract grants the right to buy or sell securities at a predetermined price, which can be exercised at any time during the period from the contract's inception to its expiration date.

European Option: This option contract grants the right to buy or sell securities at a predetermined price with an obligation to execute on the contract's maturity date.

B- Forward Contracts: are contracts between two parties for the sale or purchase of a specific asset at a future time for an agreed-upon price. The buyer holds the long position, and the seller holds the short position.

Advantages and Disadvantages of Future Ave a table or specific points to translate, feel free to provide theme's Contracts: The advantages and disadvantages of futures contracts can be elucidated in the following table (1):

Table (1): Advantages and Disadvantages of Futures Contracts

Advantages	Disadvantages
- Traded in parallel markets - Flexible contract size - Flexible contract duration - Unlimited trading time - No margin requirements	- Not subject to regulated market systems - Contract cancellation may be difficult - May involve stringent penalty clauses - Significant credit risks

Source : مريم سرارمة، دور المشتقات المالية وتقنية التوريق في أزمة 2008، مذكرة مقدمة ضمن متطلبات الماجستير، تخصص مالية، كلية علوم التسيير، منشورة جامعة منتوري، قسنطينة، 2011-2012،ص21-22.

C- Futures Contracts: These are mutual legal commitments between two parties where one party agrees to deliver to the other or receive from them, through a third party known as the intermediary, a specified quantity of an asset or commodity at a designated place and time, at a predetermined price.

*** Differences between Futures Contracts and Forward Contracts:**

Despite the significant similarity between futures contracts and forward contracts, there are fundamental differences between them that can be clarified through the following table (2) :

Table (2) : Differences between Futures Contracts and Forward Contracts

	Futures Contracts	**Forward Contracts**
1. Trading Venue	Traded on organized exchanges	Traded over the counter (OTC) markets
2. Standardization	Standardized contract terms and specifications	Customized contract terms based on bilateral agreement
3. Counterparty Risk	Lower counterparty risk due to exchange guarantee	Higher counterparty risk due to absence of exchange
4. Liquidity	Generally more liquid due to exchange trading	May lacks liquidity, especially for non-standard terms
5. Margin Requirements	Require initial and maintenance margin deposits	Often no margin requirements
6. Contract Flexibility	Less flexible in terms of customization	More flexible, allowing for tailor-made agreements

Source: هاشم فوزي دباس العباجي، **الهندسة المالية وأدواتها بالتركيز على استراتيجيات الخيارات المالية**، مؤسسة الوراق، عمان، 2007، ص83.

B - Differences between option contracts and futures contracts:
These differences highlight the contrasting characteristics and implications of option contracts compared to futures contracts.

Table (3): Differences between Option Contracts and Futures Contracts

	Option Contracts	**Futures Contracts**
1. Obligation	Holder has the right but not the obligation to buy/sell	Both parties have a legal obligation to buy/sell
2. Price Movement	Profit potential with favorable price movement	Profit potential with both favorable and adverse movement
3. Contract Flexibility	Highly flexible, allowing for various strategies	Less flexible, standardized terms and specifications
4. Risk Exposure	Limited risk exposure (premium paid)	Unlimited risk exposure due to margin requirements
5. Margin Requirements	No margin requirements	Require initial and

		maintenance margin deposits

Source : هاشم فوزي دباس العبادي، **مرجع سابق**، ص100

D- Swap Contracts: These are contractual agreements between a buyer and a seller to exchange a specific asset for cash at a later date at a predetermined price. This contract specifies the asset's specifications, and negotiations regarding all these conditions occur between the buyer and the seller. Swap contracts also come in various types, including: (شبيب، 2009، صفحة 416)

Interest Rate Swaps: This involves exchanging cash flows at a fixed interest rate from one party for cash flows at a floating interest rate from the other party based on a specified time schedule at the contract's inception.

Currency Swaps: Currency swaps involve swapping fixed or floating payments on a loan denominated in one currency for fixed or floating payments on an equivalent loan denominated in another currency. Currency swap can also involve converting a loan from one currency to a loan in another currency.

Advantages and Disadvantages of Swaps: Swap contracts offer a range of advantages but also come with certain drawbacks, which can be highlighted in the following table (4):

Table (4): Advantages and Disadvantages of Swap Contracts

Advantages	Disadvantages
- Provides flexibility in managing financial risks	- Requires complex structuring and documentation
- Allows parties to customize exposure to various risks	- Counterparty credit risk may arise
- Enables access to alternative funding sources	- May involve high transaction costs
- Facilitates hedging against interest rate and currency risks	- Regulatory oversight and compliance requirements
- Can help lower financing costs	- Market volatility can impact swap valuations
- Enhances liquidity by diversifying funding sources	- Requires ongoing monitoring and management
- Provides opportunities for arbitrage	- Potential for disputes over contract terms
- Can simplify risk management for multinational corporations	- Limited availability for smaller market participants

Source : محمد خميسي بن رجم، المنتجات المالية المشتقة (أدوات مستحدثة لتغطية المخاطر أم لصناعتها)، **الملتقى العلمي الدولي حول: الأزمة المالية والاقتصادية الدولية والحوكمة العالمية**، سطيف، 20-21 أكتوبر 2009، ص8.

II -7-2-Islamic Financial Derivatives:

In their current form, financial derivatives are considered religiously prohibited. However, through the use of Islamic financial engineering, a range of innovative alternatives can be developed that achieve the same benefits as traditional financial derivatives while complying with Islamic Sharia rules. This is achieved through : (حمزة و نعجة، 2013)

A) Sharia-compliant adaptation of options contracts: Options contracts give their owner the right to choose rather than the obligation to buy or sell. They are specified for a predetermined date. There are significant differences between Sharia-compliant options and those traded in traditional financial markets. Many economists and Islamic jurists argue that the options contracts currently used in financial markets can be classified within certain Sharia legal contracts and adaptations.

B) Sharia-compliant adaptation of futures contracts: Futures contracts specify a particular commodity with defined specifications at a certain price to be delivered at a future date. While these formulations may appear to be non-compliant with Sharia, through Sharia-compliant adaptation, alternatives can be designed that are compatible with Islamic law.

C) Sharia-compliant adaptation of forward contracts: If the goods are permissible and the companies subject to forward contracts are legitimate, forward contracts can resemble sales or futures contracts. The parties agree to sell at a known price on a specified future date, with a portion of the payment deferred.

II -8- Concept of Securitization:

Securitization is a modern financial tool that involves a financial institution gathering a pool of homogeneous and secured debts as assets, transforming them into a single credit-enhanced debt, and then offering it to the public through a specialized facility for subscription in the form of securities. This process reduces risks and ensures a continuous flow of cash liquidity for the bank (الحناوي و ابراهيم العبد، بورصة الأوراق المالية بين النظرية والتطبيق، 2002) .

Thus, the concept of securitization involves converting loans into tradable securities, which means transferring debts from the original lender to other lenders. In other words, banking securitization is the transfer of financial rights representing a collection of real estate debts, transformed into securities guaranteed by those debts and tradable. It essentially involves selling debts to parties other than those originally owed.

The term "banking securitization" has become widespread in traditional financial circles and can be equated with the term "structuring" in Islamic financial institutions. While the purpose may be similar, the content differs significantly or should be so.

"Structuring" refers to the process of converting a portion or a set of illiquid assets generating predictable income owned by the institution into securities based on partnership in the benefits of these assets over a defined period. Structuring means converting or dividing one or more assets into Sukuk: nominal documents or bearer documents of equal value representing common ownership rights in assets, benefits, or services, tradable, with holders sharing profits and losses, issued under specified terms and according to an issuance prospectus(رزق، 2004) .

II -8-1- Key Elements and Characteristics of Securitization:

Securitization relies on the following key elements :(UO, 2008)

*** The borrower, whether an individual or entity:** The purpose of borrowing may include addressing financial distress, restructuring, or utilizing borrowed funds to pay off debts with impending due dates and replacing them with long-term debt.
*** The assets subject to securitization:** Debt is embodied in the form of debt instruments, and the assets securing the debt are typically high-value assets. These assets often consist of formal mortgage rights or liens on properties or movable assets owned by the borrower indebted to the bank.
*** Pre-securitization steps:** Before the securitization process, multiple steps are taken, culminating in an agreement by the bank seeking quick cash liquidity for its debts in exchange for transferring asset ownership. Preliminary steps include surveying the bank's debtor clients regarding its intentions regarding securitizing their debts. If they agree, the bank must then organize the details of the new relationship between debtors and the new creditor.

There are also numerous tasks carried out within the framework of securitization operations, requiring attention and specialization. These include the realistic assessment of asset values, determining appropriate prices for the securities to be offered for subscription, planning subscription promotion programs, preparing cash flow studies, etc.
*** Asset management:** Despite the transfer of ownership of assets securing the issuance of securities from the financial liability of the securitizing bank to new creditors, practical experience has shown that in most deals, this bank is tasked with managing and investing the portfolio of these assets and their guarantees during the completion or execution of securitization operations.

Most debt securitization operations conducted by banks and traditional financial institutions around the world involve debts owed by their clients (debtors), with banks and financial institutions converting these debts into tradable securities in financial markets and benefiting from the proceeds of selling these securities to provide new liquidity that can be used for new financing or invested in profitable areas.

Large international financial institutions, often subsidiaries or affiliates of foreign banks, typically execute debt securitization operations. England is one of the most prominent countries in securitization operations. These operations involve these major financial institutions purchasing local companies' debts in foreign currencies, adding debt service costs, deducting them at an agreed discount rate, and then converting these debts into tradable securities in global markets.

The full value of these debts is paid to the creditor (the local bank, for example), while the repayment of those debts is usually restructured for a longer period, with a grace period commensurate with the debtors' circumstances. It is also a prerequisite for carrying out these operations that the creditor (the bank or financial institution) guarantees the securities issued in each operation. (Caporale, 2010)

II -8-2- Methods of Securitization:

Securitization is carried out using one of the following three methods: (Madsen, 2013)

*** Debt Replacement:**

Achieving securitization through this method allows for the replacement of original rights and obligations with new ones. However, it requires obtaining the approval of all parties related to the loan for the possibility of converting it entirely or partially into a financial instrument.

*** Assignment:**

This method involves transferring assets to the benefit of creditors or lenders. It is commonly used in securitizing receivables arising from the sale or lease of assets. In lease and sale contracts, installments continue to be paid to the original financier, who either transfers them to the purchaser of the receivables or settles them through a series of agreed-upon transfers when securitization occurs. In return, the financier retrieves the amount from the lessees.

*** Partial Participation:**

This method involves selling receivables by the original creditor to a specialized bank that purchases receivables and finances them. Afterward, the seller of the debt bears no responsibility if the debtor defaults. Therefore, the purchaser of the debt must ensure the debtor's eligibility and creditworthiness. It should be noted that there are various ways to protect the purchaser, ranging from obtaining collateral guarantees to debt management rights such as liens.

II -8-3- Parties Involved in the Securitization Process:

Based on the foregoing, the parties involved in the securitization process can be outlined as follows: (SR, Jaber, & Mashkour , 2018)

*** Originator Asset:**

This is the entity that utilizes the proceeds of the subscription. The originator may be a company, an individual, a government, or a financial institution. A financial institution with a special purpose, SPV, may act on behalf of the originator in organizing the issuance process for a fee or commission determined by the issuance prospectus.

*** Issuing Agent:**

This is a financial intermediary with a special purpose, SPV, responsible for the issuance process. It takes all securitization measures on behalf of the originator for a fee or commission determined by the issuance prospectus. The relationship between the originator and the issuing agent is based on an agency contract for a fee.

*** Buyer (Investor or Investors):**

The buyer can be a local or international bank or a major financial institution with high financial capability. Such institutions may have high unused liquidity ratios, which encourages them to engage in securitization operations to utilize this surplus liquidity in operations that generate relatively high returns.

*** Investment Trustee:**

This is the intermediary financial institution responsible for protecting the interests of bondholders and supervising the issuance manager. It retains documents and guarantees based on an agency contract for a fee determined by the issuance prospectus.

*** International Rating Agencies:**

These agencies play a fundamental role in rating financial issuances offered in capital markets and determining the fair price of issued securities. The most prominent of these agencies include Moody's, Fitch, and Standard & Poor's. Currently, there are also Islamic rating agencies that provide Shariah-compliant quality rating services, such as the International Islamic Rating Agency (IIRA) based in Bahrain, and the Malaysian Rating Agency (RAM).

II -8-4- Purposes of Securitization: (Ali, 2015)

Perhaps the main reason financial institutions resort to securitization is to free themselves from the constraints of public budgeting, as accounting and financial rules require adherence to capital adequacy principles and provisions to cover doubtful debts. This hampers financing activities in general, slows down the capital cycle, and reduces the bank's profitability.

In addition to this, or in parallel with it, there are a range of motivations and objectives for securitization operations, including:

- Enhancing financial efficiency, productivity, and turnover rate by converting illiquid assets into liquid ones for reinvestment. This helps expand business volumes for entities without the need to increase ownership rights.
- Facilitating financing flows for credit operations with mortgage guarantees, with better terms, rates, and longer repayment periods.
- Reducing credit risks for assets by distributing financial risks across a broad base of different sectors.
- Decreasing the likelihood of investors being exposed to financial risks and revitalizing the stagnant debt market.
- Alleviating the burden of debt, which helps achieve higher capital adequacy ratios.
- Stimulating the primary market in certain economic sectors such as real estate and automobiles.
- Boosting the financial market by mobilizing new sources of funding, diversifying financial product offerings, and activating the bond trading market.
- Securitization is a tool that aids transparency and improves market information structure because it involves multiple procedures and the participation of many institutions in the lending process, providing more information to the market.
- Providing foreign currencies in cross-border securitization, if possible, by dealing with institutions interested in remittances from abroad, or credit cards, and other benefits.

II -9- Islamic Securitization (Sukuk):

Sukuk operations represent an important short-term financial tool that Islamic financial institutions can utilize to manage assets and liabilities optimally. Securitization here refers to the process of transforming a portion or group of illiquid assets that generate predictable income, owned by the institution, into securities based on partnership in the benefits of these assets over a certain period. Through securitization, financial institutions can access the cash market to provide liquidity and manage risks to achieve their goals accurately(هنري، 2004) .

II -9-1- Parties to the Sukuk Process:

-Sukuk issuer, which may be a company, an individual, a government, or a financial institution. A intermediary institution may act on behalf of the Sukuk issuer for a fee.
-Sukuk holders, who possess various types of Sukuk documents.
-Sukuk manager, an intermediary institution acting on behalf of Sukuk holders as an investment manager or agent, managing investment activities.
-Credit rating agency for Sukuk rating.

II -9-2- Characteristics of Sukuk:

-Issued in equal value units.
-Represent a common share in ownership of assets, benefits, or services.
-Represent ownership rights and do not represent a debt on the issuer to Sukuk holders.
-Sukuk holders share profits at agreed-upon ratios and bear losses proportionally to their shares.
-Tradable after the subscription period and commencement of activity.
-Contract terms are regulated by the issuance prospectus.
-Trading is subject to conditions of the represented assets.
-Types of Sukuk (securitizable) and their applications:
- Ownership Sukuk, representing ownership of existing assets or assets described in the trust.
- Beneficial Ownership Sukuk, representing ownership of the benefits of assets or described asset benefits in the trust, sold through lease.
- Service Sukuk, representing ownership of services provided by a specific party or described party in the trust.
- Other types of Sukuk include Peace, Manufacturing, Murabaha, Partnership, Speculation, Investment Agency, Farming, Planting, etc.

II -9-3- Characteristics of Sukuk Issuer and Holder: (W & Lawrence, 2002)

The Sukuk issuer may be the owner of existing assets, the lessor, the promised lessor, or the asset described in the trust. Sukuk may be issued for the purpose of providing a service by a specific party or described party in the trust, to collect the capital of the Peace, to manufacture a commodity, to finance the purchase of Murabaha goods, to establish or develop a project, or to finance activities on the basis of partnership, joint venture, speculation, investment agency, farming, planting, etc. Sukuk holders are those who own assets, benefits, benefits of assets described in the trust, services, Peace goods, manufactured goods, Murabaha goods, the project itself, a share of the harvest in Farming Sukuk, a share of the fruit in Planting Sukuk, or a share in the land in Cultivation Sukuk.

II -9-4- Objectives of Sukuk:

The objectives and goals of Sukuk align with those of traditional securitization, albeit with some differences due to the unique characteristics of Sukuk, as mentioned earlier. The securitization of various assets held by Islamic financial institutions represents an important short-term financial tool that can be utilized to optimize asset and liability management. Sukuk securitization can provide Islamic financial institutions with one or more of the following benefits:

Increased liquidity: Assets that are relatively illiquid can quickly be transformed into liquidity, similar to assets held by a lessor in an Ijarah or Ijarah Leasing ending with ownership contract, as they are converted into cash paid by investors in the Sukuk.
Diversification of funding sources, expansion of investor base, and aggregation of necessary capital to finance expansion in activities and acquire new assets that align asset maturities with liabilities to mitigate risks.
Reduction of capital requirements: Sukuk securitization can allow Islamic financial institutions to exclude Sukuk assets.
Credit enhancement in Sukuk securitization involves contractual arrangements where the Islamic financial institution retains or bears a portion of the Sukuk securitization risk, thus providing a certain level of additional protection for other parties. Care must be taken to ensure that any credit enhancement is in accordance with Islamic Sharia principles(شلبي، 2005) .

Table (5): table illustrates the main differences between traditional securitization and Islamic Sukuk

Comparison Aspect	Traditional Securitization	Islamic Securitization
Process Scope	Securitization of interest-based loans	Securitization of real, income-generating assets
Issuance Regulation	Compliant with conventional standards and regulations	Governed by profit and risk-sharing principles
Cash Flow	Based on interest	Based on realized profits
Risk Sharing	Investors bear the risk	All parties share risks based on profit and loss sharing
Guarantees	Guarantees may be provided to some investors at the expense of others	Guarantees provided equally to all investors
Funded Activity Type	Used for financing debt purchases	Used for financing productive activities, real asset transactions, and socially beneficial financing opportunities
Advantages	High risks, gambling-like transactions, high levels of doubt, usury, and fraud	Unquantifiable risks, relatively secured transactions, free from deceit and fraud
Investor Goals	Short-term and short-sighted goals	Long-term and wide-sighted goals

Investor Goals	Contributes to financial economy growth	Contributes to real economy growth

Source : محمود محمد حنفي محمد، **الأخلاق المتعلقة بالتوريق في المصارف الإسلامية**، دار الفكر الجامعي، الإسكندرية، مصر، 2010، ص40.

II -10- Abstract:

All the factors listed above have shown the effect of financial engineering in the transformation of capital markets, and Capital market will be incomplete without financial engineering products like derivatives, which are useful in managing the risks associated with the financial system.

Absence of financial engineering and derivatives market leaves financial system vulnerable, risky and unattractive to foreign participants, because of lack of hedging mechanism to manage their risk of investing in capital market.

During the last two-decade, financial innovation has been directed to design some sophisticated financial engineering instruments, for risk management, one of the most important applications of financial engineering. Some risks can be easily managed using the elemental building block derivatives, but other risks require the services of a financial engineer to design a custom solution by creating customized derivatives which feet the needs of the management of specific risk.

Ⅲ – Analysis, Results, Recommendations.

Introduction:

The Malaysian financial market represents a new model compared to the raditional financial market, as it offers medium and long-term investment and financing opportunities. This market aims to provide a Sharia-compliant alternative to the traditional financial market, where the available financial instruments and services adhere to Islamic principles and avoid dealings involving usury (riba) and ambling (maysir).

To ensure the activities of the Malaysian financial market comply with Sharia law, there must be continuous innovation in creating financial instruments that align with Sharia rules and cleansing traditional financial instruments of prohibited impurities.

Furthermore, the Malaysian financial market, with all its Sharia-compliant or Islamic instruments, strives to achieve economic growth and develop the Malaysian economy.

Ⅲ -1- Overview of the Malaysian Economy : (نظرة عامة حول الإقتصاد الماليزي)

The Malaysian economy represents one of the most significant successes achieved by Malaysians compared to other Islamic and Third World countries. Malaysia has succeeded in developing its industries to become the primary source of income, surpassing all Islamic countries. Within forty years, Malaysia managed to transform from an agricultural society suffering from poverty and backwardness into a sophisticated society with a low poverty rate and unemployment rate of 3.5% and 5.1%, respectively. Malaysia topped the Islamic world in 2005 in terms of the volume of its exports and imports. It also succeeded in diversifying its income sources from industry, tourism, oil, timber, and agriculture. (Sanford J. & Stiglitz, 1980)

Ⅲ -2- The Malaysian Financial Market :(السوق المالي الماليزي)

The establishment of the Malaysian financial market, in both its monetary and capital aspects, is one of the prominent features in the field of finance in Malaysia. It is considered a significant advancement in Islamic finance, especially in terms of the basic structure of the market.

Ⅲ -3- Sections of the Malaysian Financial Market : (أقسام سوق المال الماليزي)

The Malaysian financial market consists of several sections, including stocks, bonds, and financial derivatives. Here is an overview of these sections: (Acharya & Matthew Richardson, 2009)

1) Equities:(الأسهم)

This section involves trading the stocks of companies listed on the Malaysian stock exchange. Stocks are traded in the main market and the secondary market.

2) Bonds: (السندات)

This section involves trading government bonds, corporate bonds, and bonds from other institutions. Government bonds include treasury bonds and regional government bonds.

3) Derivatives: (المشتقات المالية)

This section includes trading financial derivatives such as futures and options on stock indices and commodities like oil and currencies.

4) Exchange-Traded Funds (ETFs): (الصناديق المتداولة في البورصة)

These sections provide exchange-traded funds that track specific indices or groups of financial assets, allowing investors to diversify their investments.

5) Sukuk: (الصكوك)

Sukuk are Islamic debt instruments similar to bonds, representing ownership interests in assets that generate income, sold to investors in compliance with Islamic Sharia principles.

These sections reflect the diversity and development of the Malaysian financial market, providing a variety of opportunities for investors to achieve their investment goals.

Ⅲ -4- Assessment and Analysis of Various Financial Engineering Products in the Malaysian Financial Market : (تقييم وتحليل لمختلف منتجات الهندسة المالية في السوق المالي الماليزي)

Financial instruments are considered a cornerstone through which we can clearly see the condition and quality of the market. The suitability and regulation of these instruments call for market moderation and establishment. The Malaysian Securities Commission is fully responsible for monitoring all activities of Islamic securities in Malaysia.

Ⅲ -4-1- Equity Instruments (Stocks) :

Ordinary shares listed on the main board of the Malaysian stock exchange for securities are considered the closest instruments to Sharia compliance. Muslim investors can invest in them, and the list of these shares is subject to monitoring and examination from time to time. The examination process is carried out periodically twice a year, so any change in the activities of the companies affects the continuity of investment in them if their main activities become Sharia non-compliant.

And the following:

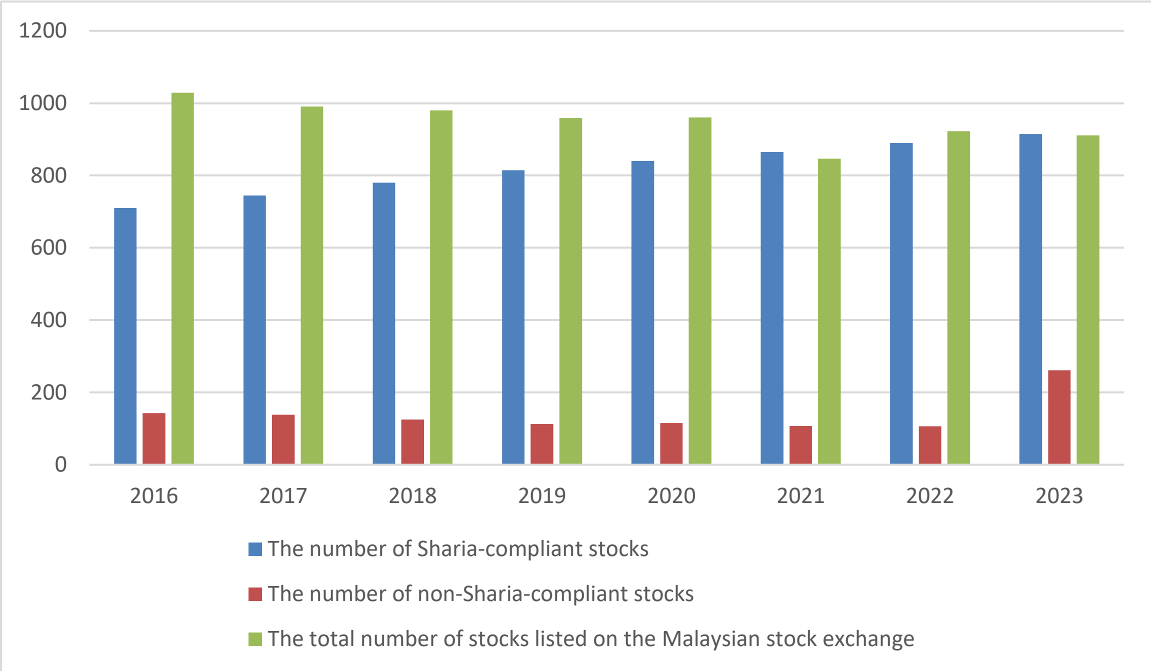
Table (6): shows the development of stocks listed on the Malaysian stock exchange for the period 2015-2023

Stocks / years	The number of Sharia-compliant stocks	The number of non-Sharia-compliant stocks	The total number of stocks listed on the Malaysian stock exchange
2015	680	154	1011
2016	710	143	1029
2017	745	138	991
2018	780	125	980
2019	815	113	959

2020	840	115	961
2021	865	107	846
2022	890	106	923
2023to 24 may	915	261	911

Source: securities commission, annual report, (2015-2023), securities commission malaysia

Figure (1): Development of key Malaysian stock market indices for the period 2015 - 2023

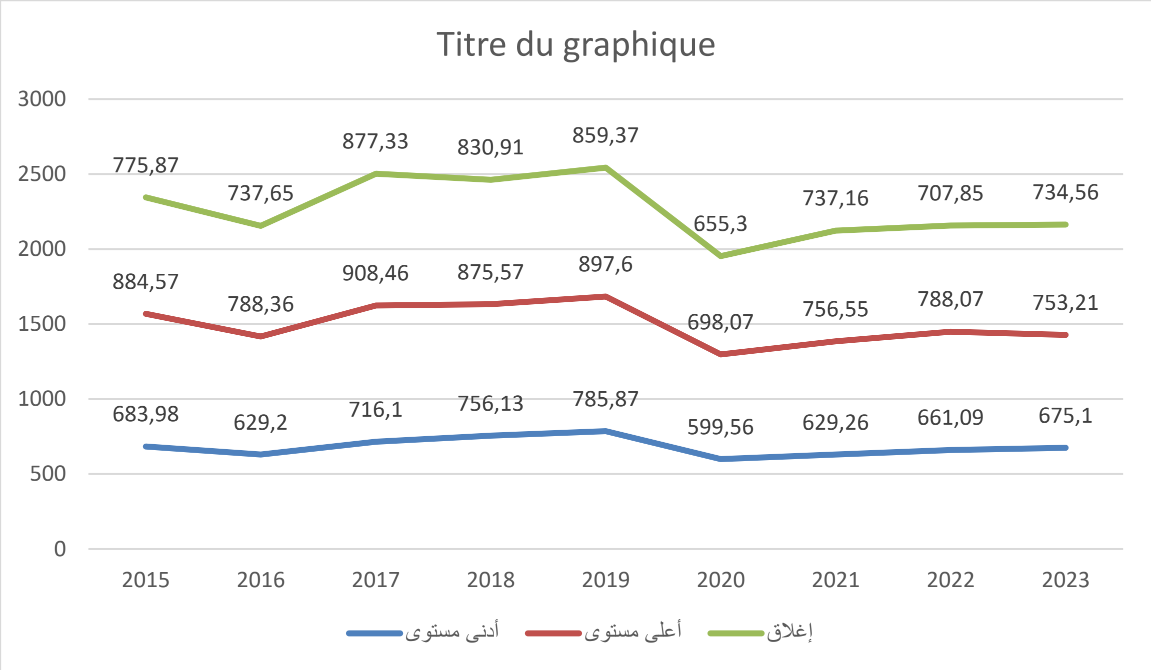


Source: Prepared by the students based on the data from Table.

Analysis:

We note a decrease in the total number of stocks listed on the Malaysian stock exchange from 1,011 in 2015 to 911 in 2023. Regarding the proportion of Islamic stocks, there has been a continuous increase from 2015 to 2023, with a slight rise in the number of non-Sharia-compliant stocks compared to the total stocks. The number of non-Sharia-compliant stocks recorded was 154 in 2015 and reached 261, with a difference of only 100 stocks.

Figure (2): FTSE Bursa Malaysia KLCI (KLCI)



Source: Prepared by the students based on the data from Table.

Note:
The index is traded on Bursa Malaysia.
The index consists of the 30 largest companies listed on Bursa Malaysia by market capitalization.
The index is used as a key benchmark for the performance of the Malaysian stock market.

Analysis:

2015 -The index experienced notable fluctuations, reaching its lowest point at 683.98 points in January 2015, then rising to its highest point at 884.57 points in July 2015. It ended the year at 775.87 points.

2016 -The index continued to be volatile but generally trended upwards. It hit its lowest point at 629.20 points in February 2016, then rose to its highest point at 788.36 points in December 2016. It ended the year at 737.65 points.

2017 -The index showed a more stable upward trend, reaching its lowest point at 716.10 points in January 2017, then climbing to its highest point at 908.46 points in November 2017. It ended the year at 877.33 points.

2018 -The index faced some challenges due to global trade concerns but remained relatively resilient. It reached its lowest point at 756.13 points in March 2018, then rose to its highest point at 875.57 points in July 2018. It ended the year at 830.91 points.

2019 -The index showed a moderate upward trend, hitting its lowest point at 785.87 points in March 2019, then climbing to its highest point at 897.60 points in November 2019. It ended the year at 859.37 points.

2020 -The index was heavily impacted by the COVID-19 pandemic, reaching its lowest point at 599.56 points in March 2020. It then began to gradually recover, reaching its highest point at 698.07 points in December 2020. It ended the year at 665.30 points.

2021 -The index continued its recovery from the COVID-19 pandemic, hitting its lowest point at 629.26 points in January 2021, then rising to its highest point at 756.55 points in November 2021. It ended the year at 737.16 points.
2022 -The index experienced significant volatility due to inflation concerns and the war in Ukraine. It reached its lowest point at 661.09 points in March 2022, then climbed to its highest point at 788.07 points in April 2022. It ended the year at 704.85 points.
2023 -As of May 24, 2023, the index reached its lowest point at 675.10 points in January 2023, then climbed to its highest point at 753.21 points in May 2023. It temporarily closed at 734.56 points.

Ⅲ -4-2- Sale-based and Deferred Payment Sukuk and Murabaha Sukuk:

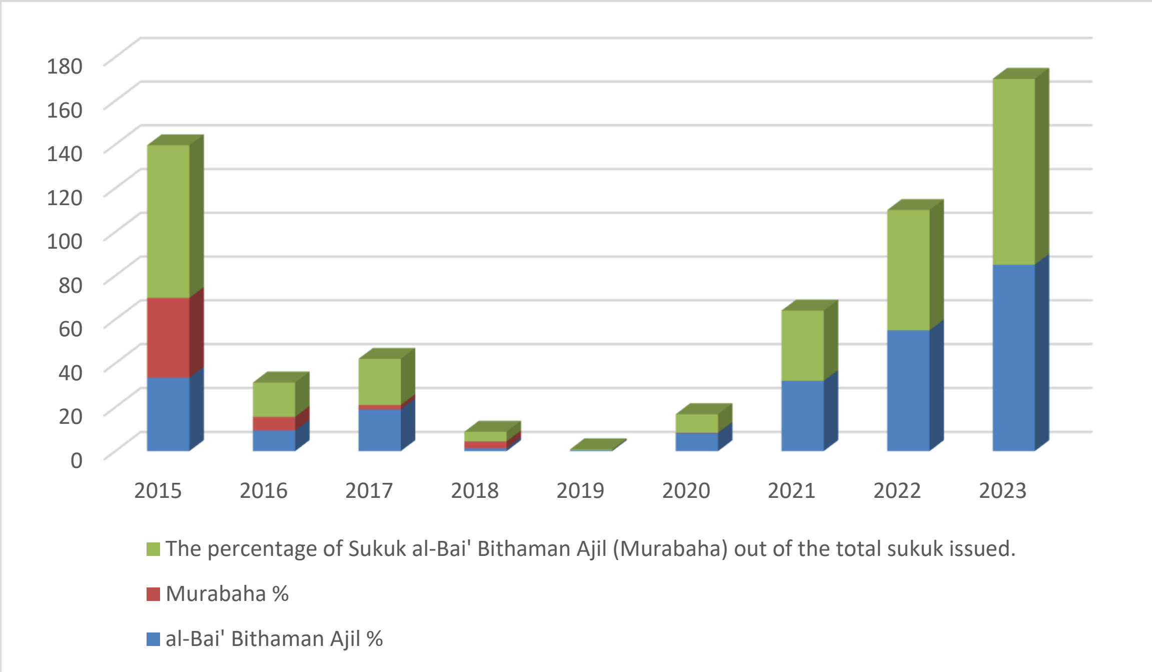
Most of the sukuk issued by private companies in Malaysia are based on debt contracts such as sukuk al-bai' bithaman ajil (deferred payment sale) and murabaha. Sukuk Deferred Payment Sale is defined as "a contract that refers to the sale of a good at a price that is deferred and higher than the spot price, with immediate delivery and a known payment date agreed upon in advance by the contracting parties." Murabaha is similarly defined to deferred payment sale, where it represents "a known profit, whether it is related to the capital or specified as a certain amount, with payment for the purchase being made in a lump sum or in installments, as specified in the agreement between the contracting parties.

Table (7): The development of the issuance of Sukuk al-Bai' Bithaman Ajil/Murabaha in Malaysia during the period 2015-2023

years	al-Bai' Bithaman Ajil %	Murabaha %	The percentage of Sukuk al-Bai' Bithaman Ajil (Murabaha) out of the total sukuk issued.
2015	33.5	36.3	69.8
2016	9.4	6.2	15.6
2017	19	2	21
2018	1.3	3.1	4.4
2019	0.4	-	0.4
2020	8.2	0.2	8.4
2021	32	-	32
2022	55	-	55
2023	85	-	85

Source : securities commission, annual report, (2015-2023), securities commission malaysia

Figure (3): The development of the issuance of Sukuk al-Bai' Bithaman Ajil/Murabaha in Malaysia during the period 2015-2023



Source : Prepared by the students based on the data from Table.

Analysis :

Dominance of Murabaha Sukuk: The data shows the dominance of Murabaha Sukuk in the issuance of Sukuk al-Bai' Bithaman Ajil (Murabaha) in Malaysia during the period 2015-2023. The percentage of Murabaha Sukuk out of the total sukuk issued ranged between 69.8% and 85% during this period, while the percentage of Sukuk al-Bai' Bithaman Ajil issuances ranged between 0.4% and 33.5%.

Divergent Trends: The issuances of Sukuk al-Bai' Bithaman Ajil and Murabaha Sukuk showed divergent trends over the period. While the issuances of Sukuk al-Bai' Bithaman Ajil saw a significant decline from 33.5% in 2015 to 0.4% in 2019, the issuances of Murabaha Sukuk saw a notable increase from 36.3% in 2015 to 85% in 2023.

Return of Sukuk al-Bai' Bithaman Ajil: In 2021 and 2022, there was a notable return of Sukuk al-Bai' Bithaman Ajil issuances, with the percentage rising to 32% and 55% respectively.

Data Unavailability for Certain Years: Specific data on the percentage of Murabaha Sukuk issuances out of the total sukuk issued is not available for the years 2019 and 2021.

Ⅲ -4-3- Manufacturing (Istisna'a) sukuk:

Istisna'a sukuk is considered one of the products of the Islamic capital market in Malaysia and is known as "debt financing." It is based on the concept of financing through the sale of debt rights. According to the Malaysian experience, Istisna'a sukuk is defined as "documents or certificates representing the value of assets issued on the basis of Istisna'a sale to prove indebtedness by the issuing entity, the manufacturer, to the funded entity." The first issuance of Istisna'a Islamic sukuk in Malaysia was in 2003 with a value of 5.6 billion Malaysian Ringgit issued by SKS Power Sdn Bhd, with a maturity period of 5 to 9 years. (زيد، 2014)

Table (8) : The development of Istisna'a sukuk in Malaysia during the period 2015-2023

years	Istisna'a sukuk %
2015	2.1
2016	9
2017	10.5
2018	18
2019	36
2020	30
2021	38.5
2022	40
2023	41.5

Source : Securities commission, annual reports, (2015-2023), Securities commission malaysia.

From the table, we observe that the issuance of sukuk was low in 2015 and then increased to 41.5% in 2023

Figure(4): The development of Istisna'a sukuk in Malaysia during the period 2015-2023

Source : Prepared by the students based on the data from table.

Analysis:

Early Growth (2015-2016): Initial adoption and interest in Istisna'a sukuk were low but showed a significant increase by 2016.
Rapid Expansion (2016-2019): The market for Istisna'a sukuk grew rapidly, with substantial increases each year, peaking in 2019.
Temporary Decline (2019-2020): There was a minor decline in 2020, possibly due to external economic factors or market corrections.
Recovery and Stabilization (2020-2023): The market recovered quickly and continued to grow, indicating a mature and stable market for Istisna'a sukuk in Malaysia.
Evidence suggests:
- A general increase in the issuance of Istisna'a sukuk in Malaysia during the period 2015-2023.
- Malaysia is a leading center for the issuance of these sukuk globally.
- These sukuk play an important role in financing various economic sectors in Malaysia.

Ⅲ -4-4- Ijarah Sukuk:

In the Malaysian experience, Ijarah sukuk refer to the ownership of leased assets. These are "equal-value documents issued by the owner of a leased asset, or an asset promised to be leased, or issued by a financial intermediary acting on behalf of the owner. They provide the holder with the opportunity to obtain rental income and capital returns from the leased asset, in addition to bearing the risk of loss and damage to the leased asset. These sukuk are issued for the purpose of selling them and collecting their value from the subscription proceeds, making the asset owned by the sukuk holders.

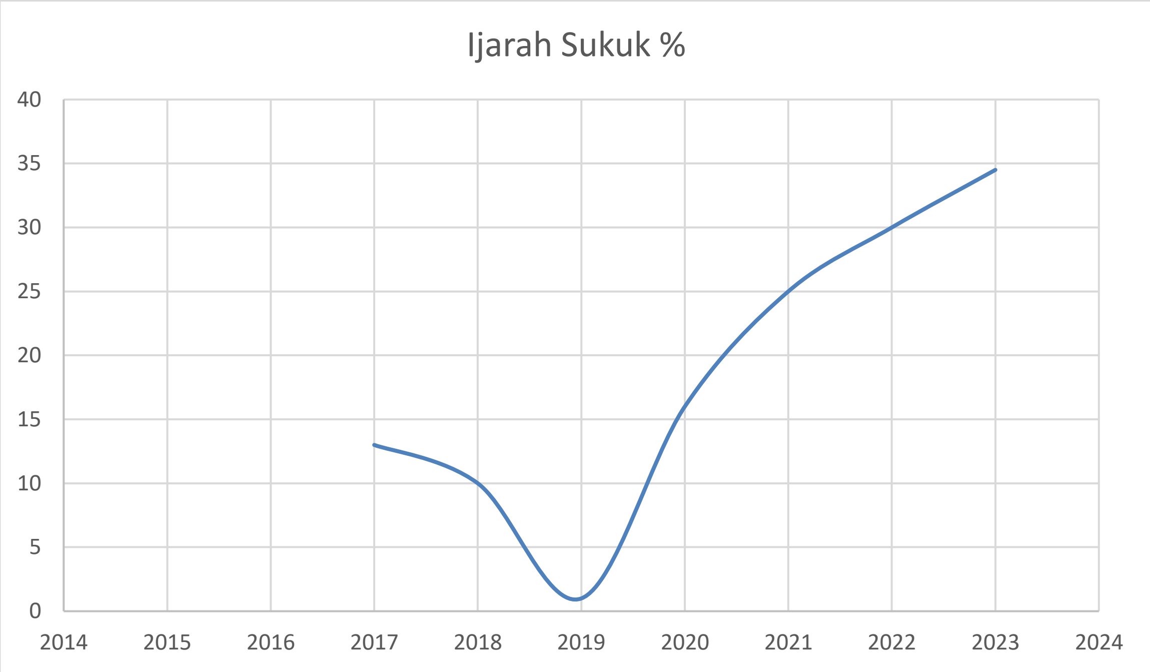
Table (9): The development of Ijarah sukuk issuance in Malaysia during the period 2015-2023

Years	Ijarah Sukuk %
2015	7
2016	-
2017	13
2018	10
2019	1
2020	16
2021	25
2022	30
2023	34.5

Source : securities commission, annual report, (2015-2023), securities commission malaysia

Notes:
*There is no single definitive translation for Ijarah sukuk in all languages.
*The exact translation may vary depending on the context in which the term is used.

Figure (5): The development of Ijarah sukuk issuance in Malaysia during the period 2015-2023



Source : Prepared by the students based on the data from table.

Analysis:

Initial Launch and Growth (2015-2017): The period from 2015 to 2017 saw an increase in the issuance of Ijarah sukuk, indicating greater adoption of this financial instrument.
Volatility and Decline (2017-2019): This period experienced significant volatility and a sharp decline in issuance, potentially due to market or economic factors.
Recovery and Continuous Growth (2019-2023): Following the significant decline in 2019, the issuance of Ijarah sukuk recovered substantially and continued to grow strongly through to 2023.

*This analysis shows that Ijarah sukuk in Malaysia experienced notable growth and development over the period from 2015 to 2023, with some periods of volatility, but ultimately ending with strong and stable growth.

Ⅲ -4-5- Musharakah sukuk:

In the Malaysian market, Musharakah sukuk are defined as an investment contract according to the Guidelines on the Offering of Islamic Securities issued in July 2015. The first issuance of Musharakah sukuk was in 2015 by “Musyarakah One Capital Bhd” with a value of 2.05 billion Malaysian Ringgit.

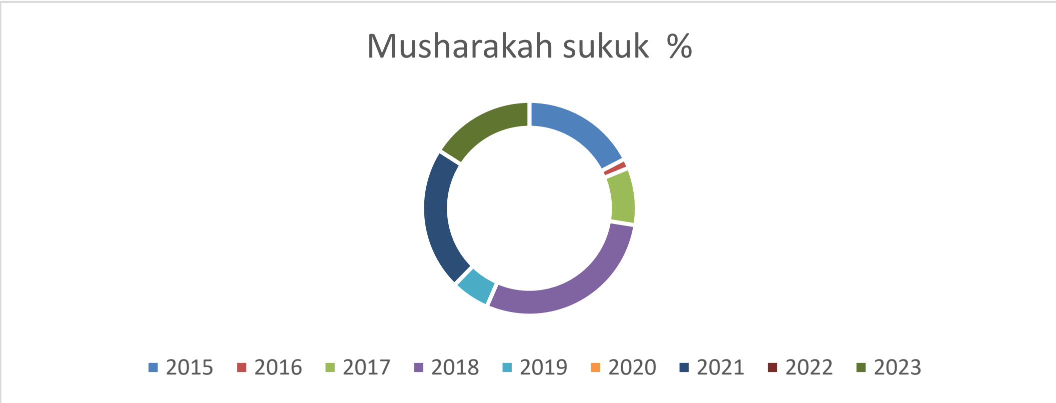
Table (10): Illustrates the development of Musharakah sukuk issuance in Malaysia during the period 2015/2023.

years	Musharakah sukuk %
2015	12

2016	1
2017	6
2018	20
2019	4
2020	-
2021	15
2022	12.5
2023	11

Source : securities commission, annual report, (2015-2023), securities commision malaysia.

Figure (6): A graph illustrating the development of sukuk issuance in Malaysia over the period 2023-2015



Source : Prepared by the students based on the data from table

Analysis:

Early Volatility (2015-2016): Musharakah sukuk started at a high level in 2015 but sharply declined in 2016, indicating early market instability.
Strong Growth and Decline (2017-2019): The period from 2017 to 2018 saw strong growth followed by a period of decline in 2019.
Recovery and Stability (2021-2023): Stocks began to recover in 2021 and then stabilized at reasonable levels in the following years, indicating market stability and the strength of Musharakah sukuk as a financing tool.

Ⅲ -4-6- Mudarabah Sukuk:

There is no specific definition other than the definition of the Islamic Mudarabah contract in the Islamic Securities Offering Document for July 2005 issued by the Malaysian Securities Commission, and the development of Mudarabah Sukuk.

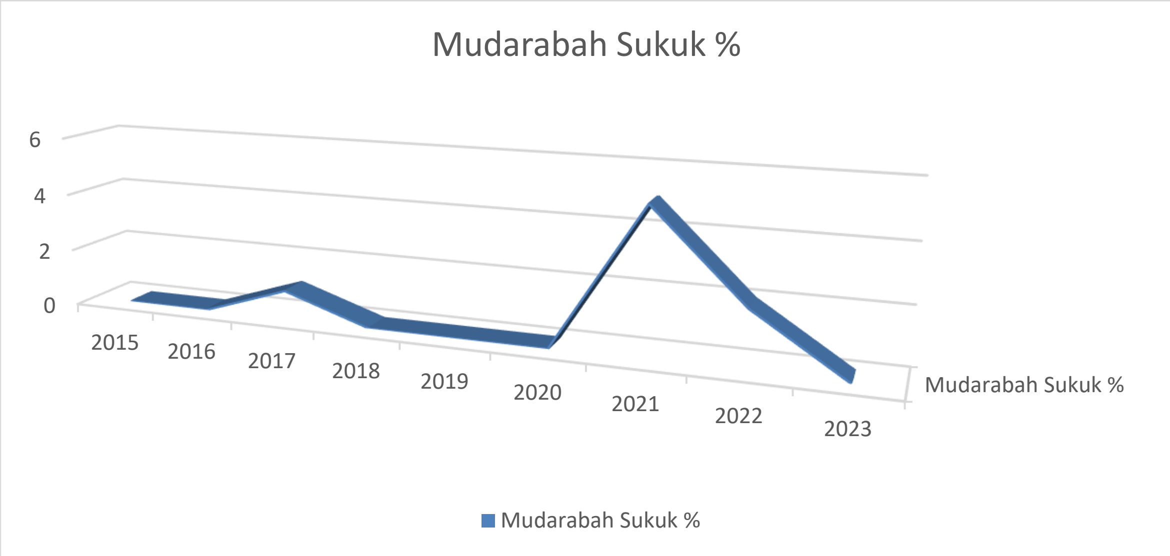
Table (11): The evolution of Mudarabah Sukuk in Malaysia during the period 2015-2023

years	Mudarabah Sukuk %
2015	0.2
2016	7.5
2017	1
2018	1.2
2019	-
2020	0.6

2021	5
2022	2
2023	2.63

Source : securities commission, annual Reports, (2015-2023), securities commission malaysia.

Figure (7): The evolution of Mudarabah Sukuk in Malaysia during the period 2015-2023



Source : Prepared by the students based on the data from table.

Analysis :

2015-2016 :Significant Growth

In 2015, the percentage of Mudarabah Sukuk was very low at 0.2%, but it increased significantly to 7.5% in 2016, indicating a growing interest and reliance on this type of Sukuk.

2017-2018 :Decline

In 2017, the percentage of Mudarabah Sukuk decreased to 1%, which could be a result of market factors or changes in demand and supply.

In 2018, the percentage continued to decline to 1.2%.

2019-2020 :Data Unavailable

No data was recorded for 2019, indicating a lack of data or issuances for this type of Sukuk during that year.

2020-2023 :Stability and Slight Increase

In 2020, the percentage continued to decline slightly to 0.6%.

From 2021 to 2023, the percentage fluctuated around 2-5%, indicating market stability and the continued adoption of Mudarabah Sukuk as a financing tool.

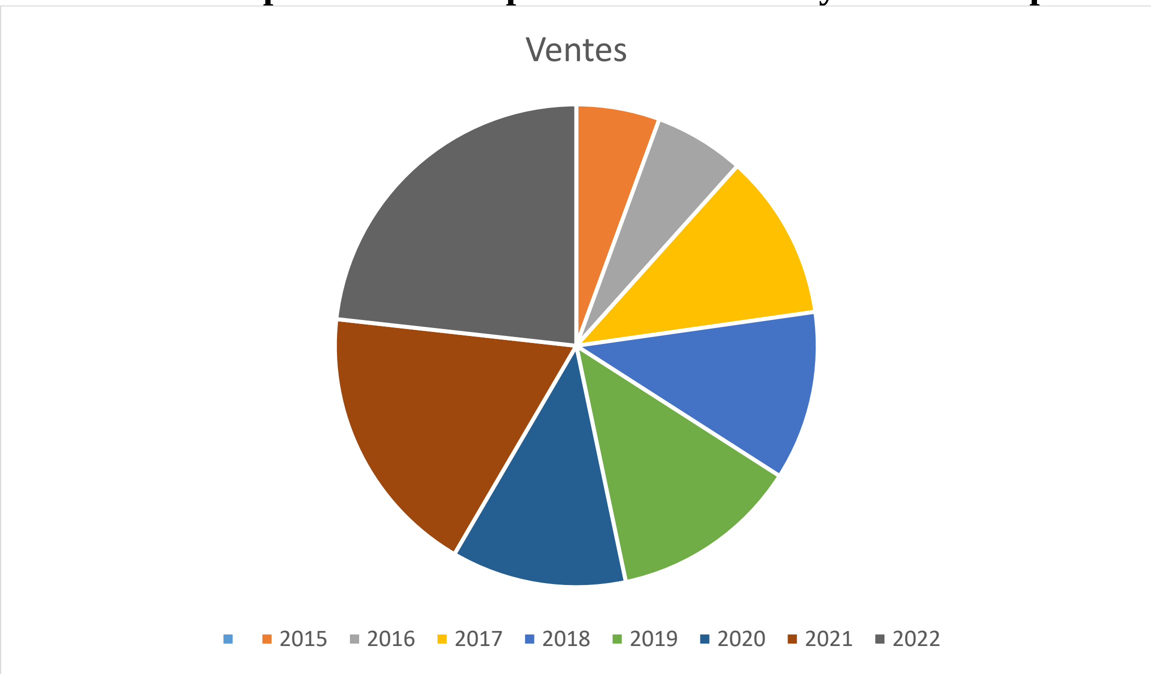
Ⅲ -4-7- Investment funds:

The first Islamic investment fund in Malaysia was established in 1992. Its primary objectives were to invest in Sharia-compliant stocks, which have seen significant growth in recent years. This growth has contributed to the increase and expansion of these funds in the Malaysian Islamic capital market. In 1997, the Securities Commission issued guidelines governing the operation of these Islamic investment funds. The growth of Islamic investment funds can be observed from the period 2015 to 2023 through the net asset value.

Table (12): Evolution of Net Asset Value in Islamic Investment Funds in Malaysia Over the Period 2015/2023

years	Net Asset Value in Islamic Funds
2015	8.49
2016	9.17
2017	16.9
2018	17.2
2019	19.2
2020	17.8
2021	27.86
2022	35.3
2023	42.82

Figure (8): illustrating The evolution of Islamic bonds market capitalization to total capital market capitalization in Malaysia over the period.



Source : Prepared by the students based on the data from table.

Analysis :

The table shows the Net Asset Value (NAV) of Islamic funds in Malaysia from 2015 to 2023. Here is an analysis of the data:

Steady Growth (2015-2016): The NAV started at 8.49 in 2015 and increased to 9.17 in 2016, showing a modest growth trend.

Significant Increase (2016-2017): There was a substantial jump in NAV from 9.17 in 2016 to 16.9 in 2017, indicating a period of rapid growth and potentially increased investment in Islamic funds.

Stable Growth (2017-2019): The NAV continued to grow steadily, reaching 19.2 in 2019. This period suggests sustained investor confidence and interest in Islamic funds.

Dip in 2020: The NAV dipped slightly to 17.8 in 2020, possibly due to external factors like economic conditions or market volatility.

Strong Recovery and Growth (2021-2023): There was a significant rebound in 2021, with NAV reaching 27.86, followed by robust growth in 2022 and 2023, reaching 35.3 and 42.82 respectively. This indicates a strong recovery from any previous downturn and a period of solid growth for Islamic funds in Malaysia.

*Overall, the data illustrates a positive trend of growth and resilience in Islamic funds in Malaysia over the analyzed period, with some fluctuations reflecting market conditions and investor sentiment.

Ⅲ -4-8- The extent of the decrease in sukuk market capitalization in Malaysia:

from 0.661 trillion RM in 2015 to 0.608 trillion RM in 2023, showing a decline of approximately 8.72%.

Table (13): The market capitalization of the Islamic sukuk market compared to the overall securities market in Malaysia during the period 2015-2023

Capital Market Capitalization (Trillion Ringgit).	Islamic Bonds Market Capitalization (Trillion Ringgit)	The ratio of Islamic Bonds Market Capitalization to Total Capital Market Capitalization %	ratio of Islamic bonds market capitalization to total capital market capitalization %
2015	1.16	0.13	11.21
2016	1.28	0.14	11.98
2017	1.67	0.20	16.67
2018	1.26	0.21	15.15
2019	1.65	0.25	14.22
2020	1.42	0.29	19.35
2021	2.12	0.35	16.15
2022	2.48	0.48	19.35
2023	2.75	0.51	21.01

Analysis:

Market Capitalization of the Financial Market and Islamic Sukuk Market (2015-2023):

The market capitalization of the financial market in Malaysia showed a significant change during the mentioned period, increasing from 1.16 trillion RM in 2015 to 2.75 trillion RM in 2023. As for the market capitalization of the Islamic sukuk market, it also increased from 0.13 trillion RM in 2015 to 0.51 trillion RM in 2023.

The ratio of the market capitalization of the Islamic sukuk market to the total market capitalization (2015-2023):

There have been fluctuations in this ratio over the years, with increases and decreases between different years. The fluctuations in this ratio may reflect changes in demand for Islamic sukuk compared to the rest of the financial market.

Ⅲ -4-9- The ratio of the market capitalization of the financial market

to the Gross Domestic Product (GDP) is an important indicator of the size and significance of the financial market relative to the overall economy. This ratio can provide insights into the depth and breadth of the financial sector in supporting economic activities and growth.

Calculating this ratio involves dividing the market capitalization of the financial market by the GDP of the country for a specific period. The result is usually expressed as a percentage, showing the proportion of the economy's value represented by the financial market.

For example, if the market capitalization of the financial market in a country is $1 trillion and the GDP is $20 trillion, the ratio would be:

Market Capitalization-to-GDP Ratio} = $\frac{\text{Market Capitalization}}{\text{GDP}} * 100 = \frac{1\ trillion}{20\ trillion} * 100$ = 5%.

This means that the financial market's capitalization is equivalent to 5% of the country's GDP. The trend of this ratio over time can indicate the relative growth or decline of the financial market compared to the overall economy.

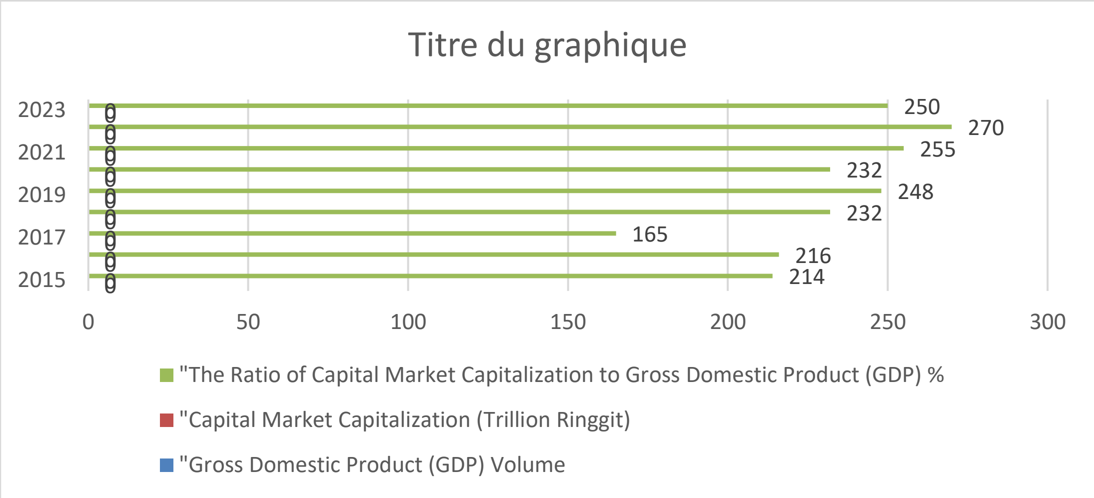
Table (14): Capital Market Capitalization to Gross Domestic Product (GDP) Ratio in Malaysia Over the Period 2015-2023

Years	**"Gross Domestic Product (GDP) Volume**	**"Capital Market Capitalization (Trillion Ringgit)**	**"The Ratio of Capital Market Capitalization to Gross Domestic Product (GDP) %**
2015	0.54	1.16	214
2016	0.59	1.28	216
2017	0.66	1.26	165
2018	0.76	1.65	232

2019	0.71	2.04	248
2020	0.81	1.12	232
2021	0.91	2.48	255
2022	0.97	2.73	270
2023	1.01	2.76	250

Source: Securities commission Malaysia annual report (2015, P 2-19), (2016, P 6-47), (2017, P 6-51) ,(2019, P 6-52), (2020, P 6-55), (2021, P 1-10), (2022, P 18), (2023, P 144).

Figure (9): Capital Market Capitalization to Gross Domestic Product (GDP) Ratio in Malaysia Over the Period 2015/2023



Source : Prepared by the students based on the data from table.

Analysis:

Gross Domestic Product (GDP) Growth:

The Gross Domestic Product experienced continuous growth during the mentioned period, rising from 0.54 trillion Ringgits in 2015 to 1.01 trillion Ringgits in 2023.

Market Capitalization Growth:

There was a significant growth in the market capitalization of the financial market, increasing from 1.16 trillion Ringgits in 2015 to 2.76 trillion Ringgits in 2023.

Market Capitalization-to-GDP Ratio:

This ratio varied over the years, increasing and decreasing between different years. In 2017, the ratio significantly decreased to 165%, but it increased again in subsequent years.

We can conclude that Islamic sukuk play a significant role in mobilizing financial resources to finance economic growth in Malaysia. They can also be relied upon during crises that affect the interest-based conventional economy. In addition to attracting a specific category of investors seeking to invest their money in accordance with Islamic Shariah principles, they represent a suitable financing alternative for all investors during times of financial market crises.

Ⅲ -4-10- Islamic Investment Funds in Stimulating the Malaysian Islamic Capital Market:

Islamic investment funds play a significant role in stimulating the Malaysian Islamic capital market by influencing the volume of investments.

Table (15):Volume of Islamic Investment Funds Traded in the Islamic Financial Market 2015-2023

Years	Islamic Assets Under Management %	Islamic Assets Under Management	Islamic Assets Under Management
2015	19.82	132.38	667.84
2016	21.49	149.64	696.77
2017	22.01	170.83	776.23
2018	21.40	171.63	795.11
2019	22.33	167.95	784.62
2020	22.60	155.32	774.33
2021	21.22	155.33	798.32
2022	21.55	170.22	755.22
2023	20.20	178.36	878.02

Source: securities commission Malaysia, fund management statistics report, 2023

Analysis:

Percentage of Managed Islamic Assets

The percentage of managed Islamic assets varied over the years, rising and falling between different years. Overall, the numbers indicate a relative stability in the percentage of managed Islamic assets over the recent years.

Size of Managed Islamic Assets

Managed Islamic assets saw a slight increase from 132.38 billion ringgit in 2015 to 178.36 billion ringgit in 2023.

Summary of Analysis:

The analysis focused on the evolution of various financial engineering products in the Malaysian financial market from 2015 to 2023, with an emphasis on Islamic assets such as sukuk and exchange-traded funds (ETFs). It also included an examination of the risks associated with these instruments, their historical performance, market trends, and the local regulatory environment.

The data indicated a slight increase in managed Islamic assets and continued growth in the Malaysian financial market over the past few years. There was also relative stability in the market capitalization to GDP ratio, reflecting the strength and stability of the Malaysian financial market.

Islamic sukuk were found to play a significant role in mobilizing financial resources for economic growth in Malaysia and could be relied upon during times of economic crisis. Islamic investment funds were noted for their importance in stimulating the Malaysian Islamic financial market by influencing investment volumes and attracting Sharia-compliant investors.

Overall, financial engineering has had a positive impact on capital markets, improving their efficiency and driving economic growth. However, there are instances where financial engineering can have a negative impact, such as during the financial crisis, where it exacerbated the depth and duration of the crisis.

CONCLUSION:

In conclusion, the study of financial engineering tools within the Malaysian financial market from 2015 to 2023 has highlighted significant insights.
Here are three hypothetical that could lead to the conclusions drawn in the study:

Government Support and Regulatory Framework: The Malaysian government introduced supportive policies and a robust regulatory framework aimed at promoting Islamic finance within the country. These initiatives included tax incentives, regulatory reforms, and the establishment of Sharia-compliant financial institutions. Such measures encouraged the issuance of sukuk and other Islamic financial instruments, leading to their consistent growth pattern over the years.

Economic Stability and Market Confidence: Malaysia experienced relative economic stability and resilience during the period under study. This stability, coupled with confidence in the Malaysian financial market, attracted both domestic and international investors to Islamic financial instruments. As a result, managed Islamic assets, including sukuk, witnessed steady growth as investors sought Sharia-compliant investment opportunities amid global economic uncertainties.

Market Education and Awareness: There was a concerted effort by financial institutions, educational institutions, and religious bodies to educate the public about Islamic finance and its benefits. This awareness campaign increased the acceptance and integration of Islamic financial instruments among investors, leading to a gradual shift towards Sharia-compliant investment products. As investors became more familiar with the advantages of sukuk and other Islamic instruments, their demand grew steadily, contributing to the overall growth of managed Islamic assets within the Malaysian financial market.

RESULTS:

After studying and analyzing a variety of financial engineering instruments in the Malaysian financial market from 2015 to 2023, we have reached the following conclusions:

1 .Growth of Managed Islamic Assets:** Managed Islamic assets saw a slight increase from 132.38 billion Malaysian Ringgit in 2015 to 178.36 billion Malaysian Ringgit in 2023. This reflects positive growth in the Islamic assets sector in Malaysia.

2 .Relative Stability in the Percentage of Managed Islamic Assets:** Despite minor fluctuations, there has been relative stability in the percentage of managed Islamic assets over the recent years.

3 .Increase in Market Capitalization:** The market capitalization of the Malaysian financial market increased from 1.16 trillion Malaysian Ringgit in 2015 to 2.75 trillion Malaysian Ringgit in 2023.

4 .Variation in the Market Capitalization to GDP Ratio:** This ratio varied over the years, with fluctuations indicating changes in market performance and investor confidence.

5 .Role of Islamic Sukuk:** Islamic sukuk have shown a significant role in mobilizing financial resources for economic growth in Malaysia. They can be relied upon during economic crises that affect conventional interest-based economies.
6. Importance of Islamic Investment Funds:** Islamic investment funds play a crucial role in stimulating the Malaysian Islamic financial market by influencing investment volumes and attracting a specific group of investors seeking Sharia-compliant investments.

RECOMMENDATIONS:

Among the recommendations that can be made to take advantages of the positive impact of financial engineering on capital markets and decrease the negative impact, we generally find the following
- It is necessary to realise simultaneous changes in the supporting financial infrastructures. By improving the institutional interface between intermediaries and financial markets, regulatory practices, organization of trading and clearing facilities, and management information system. In order to achieve improvements in efficiency of innovations involving derivatives, which lead to financial and economic efficiency.
- The need of specific rules for setting, implementing, monitoring and auditing financial instruments.
- Institutions dealing with derivative products (synthetic/ structured) on a regular basis must build and maintain a proper internal control framework allowing efficient risk management. The internal controls can take various forms, but tends to relate to credit and market risk management, independent financial and operational processing, and internal auditing. The combination of the three, working in synchronized fashion, can create a more secure dealing environment and reduce the possibilities of unexpected losses of institutions.
- The need a good regulatory framework, designed in such a way that benefits of using financial instruments are fully exploited. However, to achieve what we aim at, we will need a much bolder regulatory framework that would go beyond overcoming barriers towards truly facilitating and enhancing new financial instruments. Instruments. because a good Regulatory environment that renders financial markets sustainable and effective is crucial, while making clear that leveraging financial means, the use of innovative models through the combination of public and private finance is necessary. For this to be effective. Experiences so far suggests the continued need of providing support for administrative capacity building in the area of financial
- The policy makers should consider putting in place policies aimed at encouraging the growth of the derivatives market to enhance financial engineering and innovation. Consequently, the stock market will experience tremendous increase in patronage with development of the derivatives market.
- improving the area of resource efficiency, innovation, cooperation, and risk management in capital markets, by enhancing financial engineering investments

that will be needed not only in corporate finance linked investments, also in national finance.
- More work is needed to better understand the impact of financial engineering on the ground in general, and in financial markets in particular, in addition to the barriers to overcome. That because of the growing interest of States in the use of these financial engineering initiatives, as well as increasing application on the ground.

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