

The Role of Adopting Information Technology in Enhancing Financial Market Efficiency

دور تبني تكنولوجيا المعلومات في الرفع من كفاءة السوق المالي

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Abstract:

The following study aims to highlight the role of information technology in enhancing financial market efficiency. The descriptive and historical approach is adopted to understand all the foundations and concepts related to information technology. Subsequently, the study delves into market efficiency and its requirements, shedding light on the relationship between the variables. The study has concluded that the adoption of information technology plays a significant role in enhancing financial market efficiency, leveraging the importance and characteristics of available information, as well as the advantages provided by electronic trading.

Keywords:Information Technology, Information Characteristics, Financial Market Efficiency

JEL classification codes: G1, O3

1. Introduction :

In recent decades, the world has experienced significant advancements across all spheres of life, particularly in the technological domain, which is considered the backbone of modern economies. Through technology, most sectors have transitioned from routine paper-based tasks to organized intellectual endeavors reliant on numerical data. As a result of these advancements, there has been a growing demand for information technology, which has become the most crucial resource compared to traditional resources. It serves as a fundamental and significant factor in the success or failure of organizations, particularly in shaping the economies of countries and influencing the performance of their financial markets. This is attributed to the inherent importance and value of information itself. Financial markets play a pivotal role in modern economic systems, given their functions and tasks as integral components of the financial sector's growth in any country. They act as intermediaries between savers, whether individuals or institutions, and diverse projects in need of capital funding. To effectively carry out these functions, financial markets require a level of efficiency, largely contingent upon the availability of information to all investors. This underscores the importance of providing the latest and most effective information technology tools to disseminate information to investors worldwide, facilitating access to trading activities in the securities market.

- Research Problem:

From this perspective, the research problem of this study centers on elucidating the theoretical aspects of information technology and identifying the key levels and requirements for financial market efficiency, as well as the role of information technology in improving this efficiency. Based on the above, the main research question is:

-How does information technology contribute to enhancing and improving financial market efficiency?

Study Significance:

The significance of this research lies in the importance of the topic, as this study aims to highlight the role of information technology in improving the efficiency of financial markets. Accordingly, we have divided the research paper into three main sections as follows:

- The conceptual framework of information technology

- Financial market efficiency
- The role of information technology in enhancing financial market efficiency

2. The Conceptual Framework of Information Technology

2.1. Concept of Information Technology:

The concept of information technology is extensively utilized in contemporary research. It is a multifaceted and multidimensional concept, representing the latest advancements in technology. Technological progress, particularly in the field of communications, has effectively eliminated barriers between countries. It is also somewhat an overlapping concept due to the developments it has undergone. Most of these technologies have existed for the past thirty years or more. What can be considered recent is the expansion of their applications in the management of institutions and their heavy reliance on networked work, especially the internet. To gain a clearer understanding of this term, we will delve into the conceptual framework of information technology by first defining technology and information, and then arriving at the definition of information technology.

The word "Technology" originates from Greek, comprising two parts: "Techno," meaning the art of craft or operation, and "Logy," meaning science or method. Thus, in its linguistic sense, "Technology" means the applied science of industry (Rajraj, 2013, p. 306). In addition to this, information is defined as data that has been processed to become more useful for an individual's future, with inherent value in its current or anticipated use, or in the decisions made based on it (Alaa Eldin Ahmed Mohammed Ali & Jibril Abu Naseeb Musa Amna, 2021, p. 404). From a technical or administrative perspective, the term "information technology" refers to any kind of technology involved in the processing, transmission, storage, and retrieval of information in electronic format. This includes computer systems, communication network tools, and other modern equipment connected to information systems.

Information technology constitutes a body of knowledge, expertise, technical practices, and interrelations among subsystems at work. Its application contributes to fulfilling real or anticipated economic and social needs. Information technology is defined as: "Various types of discoveries, products, and inventions influenced by the emergence of modern computer and communication technologies that deal with

various types of information in terms of collecting, analyzing, organizing, storing, and retrieving it in a timely and appropriate manner" (Ibn Al-Barr & Mokran, 2019, p. 44).

Information technology is also defined as: "The hardware, software, remote communication tools, database management, and other information processing techniques used in computer-based information systems" (Al-Shukri, 2016, p. 73) .

In general, information technology is defined as the use of computer devices to create, process, store, retrieve, exchange, and manage all types of data and information. It constitutes a part of information and communication technology.

2.2. Importance and Objectives of Information Technology

a. Importance of Information Technology:

Any attempt to demonstrate the importance of information technology must be preceded by acknowledging that information is far more important than technology itself. There is no need to prove the benefits of information here, as they are widely recognized. What has increased the importance of information is the modern technological means that have provided information with another dimension.

With the technological advancements in the processing, storage, and transmission of information, it has become impossible to separate information from technology. Moreover, the importance of information technology is not limited to a specific era but rather increases day by day. Its significance can be demonstrated in the following points (Mohammed Sayed & Bourkaib , 2019, p. 64):

- Transferring information and data from sender to recipient in the shortest possible time, with minimal cost, and with maximum accuracy.
- Information technology has become the driving force for institutions towards globalization, which has changed the way the world operates, with innovation serving as a key driving force behind globalization.
- Contributing to the administrative decision-making process by supporting decision-makers and assisting everyone in achieving their objectives. Information technology provides the means and tools to facilitate this process. The accuracy of a decision depends on the availability of information, its processing method, the presentation of alternatives, the cost of each alternative, and the resulting impacts. This helps

administrators weigh alternatives to make the appropriate decision.

- It contributes to reducing the time needed to provide the elements and components involved in the production process, leading to cost reduction.
- It works on developing the institution's products using modern means, striving to offer new products that satisfy the needs and desires of customers and seeking new opportunities in local and global markets.
- It surpasses all barriers of time in the realms of industry, finance, business, trade, and beyond. In the era of information technology, deals can be struck within seconds, at any time, through the internet, electronic computing devices, or other modern technological equipment.
- The use of computer networks can be expanded under the umbrella of information technology, allowing for direct communication between computer devices, enabling the exchange of information across the network.
- It aids in achieving effective control over operational processes.
- It helps in providing an efficient workforce within the organization.
- Information technology contributes to individual learning and organizational education, as it creates knowledge that enables institutions to enhance capabilities and improve performance to deal with change.
- The information technology sector is considered a major supporter of the economy in countries that have effectively utilized it.

b. Objectives of Information Technology:

Information technology has contributed to achieving a set of objectives, including: (Al-Mustofi, p. 51)

- Facilitate planning, monitoring, coordination, and decision-making processes, enabling management to perform these vital functions with greater speed, accuracy, comprehensiveness, and therefore achieve better results.
- Modify human resource management practices through the use of innovative informational and communicative mechanisms and tools, enhancing their connectivity and

communication with each other and increasing their exposure to information.

- Help reduce the size of the administrative apparatus and streamline expenses.
- The overwhelming amount of information.
- Access to information in a timely manner.
- Enhance management's ability to develop and implement strategies and action plans based on interconnectivity and communication with change, and the speed of response to the market and competition.

2.3. Characteristics of Information Technology

Information technology is characterized by many features, among the most important of which are: (Saima, 2017, page 11)

- **Interactivity:** Information technology is interactive, as it possesses features that enable it to interact fully with all elements of the organization, including human and non-human elements.
- **Flexibility:** The uses of information technology are diverse, reflecting our varied needs. A simple example is the computer, which we use in our daily and professional lives. It serves as a tool for writing, performing various complex operations like remote communication, and more. Information technology also grants high efficiency in production due to its considerable flexibility compared to a device with limited uses.
- **Miniaturization:** This refers to being faster, smaller, and less costly. It is one of the key features of information technology, characterized by continuous improvements in speed and memory capacity.
- **Space Reduction:** All places have become electronically adjacent.
- **Time Reduction:** For example, the internet allows anyone to obtain the necessary information and data in a short time, regardless of their geographical location.
- **Increased Productivity:** Information technology enhances productivity when used efficiently and effectively.
- **-Sharing Intellectual Tasks with Machines:** This results from the interaction and dialogue between the researcher and the machine.

- **Artificial Intelligence:** One of the most significant features of information technology is the development of knowledge and the enhancement of user training opportunities for comprehensiveness and control in the production process.
- **Formation of Communication Networks:** A unified set of equipment forms communication networks, increasing the flow of information between users, industrialists, and machine producers, facilitating the exchange of information with other activities.
- **Asynchrony:** This means that multiple people can use the same information simultaneously.
- **Decentralization:** This feature allows for the independence of information and communication technology. For example, the internet continues to function under all circumstances and cannot be disrupted by any single entity globally.
- **Interoperability:** This refers to the ability to connect various communication devices regardless of their manufacturer or the country in which they were made.
- **Portability and Mobility:** This refers to the user's ability to access services while on the move, from any location, using various communication devices such as laptops, mobile phones, and more.
- **Transference Capability:** This is the ability to transfer information from one medium to another, such as converting an audio message into a printed or readable format.
- **Non-Massiveness:** This refers to the ability to direct the communication message to an individual or a specific group rather than necessarily targeting a large audience. This implies controllability, as the message can be delivered directly from the producer to the consumer. It also allows for the integration of different types of communication, whether from one person to another or from a group to another group.
- **Ubiquity and Spread:** This refers to the network's ability to expand to cover increasingly vast and unlimited areas of the world, gaining strength from this systematic spread of its flexible pattern.
- **Globalization:** This is the environment in which these technologies operate. Information takes different and complex paths spreading across various regions of the world. It allows capital to flow electronically, especially considering

the ease of commercial transactions driven by informational capital. This allows it to overcome the barrier of place and cross international borders.

2.4. Advantages of using information technology

The use of information technology brings about numerous benefits and advantages for its users in both their personal and professional lives. Some of these include: (Sahel &Bousseta , 2022, p. 176)

- **Precision:** It allows for the identification or indication of the most minute differences that humans usually struggle to identify, especially when they are numerous and repetitive.
- **Reliability:** It entails technological devices following the same procedures consistently, enabling us to anticipate reliable results and use them confidently and as required, regardless of usage conditions and nature.
- **Increase in sales and profits:** By assisting organizations in satisfying consumers' needs and desires, an increase in sales results in improved profitability, especially with cost reduction.
- **Cost reduction:** Organizations perform tasks and operations in an automated manner to reduce costs.
- **Gaining competitive edge:** Through the design of innovative programs and applications, these organizations can compete more efficiently.
- **Speed:** This refers to the rapid execution of tasks and commands. Information technology has revolutionized service delivery by enabling swift execution of commands and complex operations almost instantaneously, allowing for the simultaneous execution of multiple operations and functions.
- **Improving Quality:** One of the primary reasons for utilizing information technology is to enhance the quality of outputs. Designing with the assistance of computers is a prime example of this. Engineers utilize workstations or what are known as computer terminals to create engineering drawings, storing these drawings for easy modification to enhance their quality. This system reduces the effort expended in design and consequently decreases the need for additional engineers.
- **Stability:** Information technology is characterized by its ability to perform the same tasks and functions at the same pace and repeat the same tasks. Computers excel in repeating

tasks consistently, executing them repeatedly in the same manner and obtaining the same results, regardless of the number of repetitions.

These advantages vary depending on the type of strategy adopted by economic institutions and are summarized in the following table:

Table 1. Strategic advantages achieved through the use of information technology

Number	The strategy	Its fields
01	Low cost	- Use it to significantly reduce operational costs. - Use it to lower prices from the supplier to the consumer.
02	Differentiation	Developing new features through it to: - Achieve differentiation of goods and services - Reduce competitors' opportunities for differentiation - Focus goods and services on the chosen market position
03	Continuous improvement	- Develop new goods and services that incorporate its components. - Identify unique markets or unique market segments with its assistance. - Implement radical changes in processes to reduce costs, improve quality, enhance efficiency, and increase customer satisfaction.
04	Growth	- Utilize it for managing regional and global expansion. - Utilize it to achieve diversity and integration among goods and services.
05	Developing partnerships	- Utilizing it to establish dynamic organizations among industry partners. - Developing communication networks to support strategic relationships with customers, suppliers, etc.

Source:Mazhoud, Hicham, and Klash, Mariam, 2020, p. 90.

3. Financial Market Efficiency

3.1. The Concept of Financial Market Efficiency

Despite the multitude of definitions and concepts put forth by financial and economic experts regarding the efficiency of the financial market, they largely converge on a single meaning. Delkaoui defined an efficient market as "one in which a state of continuous equilibrium is established, where securities' prices are exactly equal to their true value, and they move randomly without being controllable." (Al-Muzaini, 2002, p. 31) As for Eugene Fama, he defined Efficient Markets as "the market that fully reflects all available information about the company or entity that issued the securities, whether in the form of financial statements, information published through the media, or in the historical record of security prices, or other information that affects the company's performance and the market value of its securities." (Messadaoui, 2014, p. 10) The concept of efficiency entails prompt price adjustments that reflect new information, whether positive or negative news, after investors have evaluated all information. There is no time gap between analyzing the new information entering the market and reaching conclusions regarding the stock price. Similarly, there is no time gap between reaching these conclusions and all investors obtaining them. (Al-Hindi, 2002, p. 65) Based on the aforementioned, market efficiency in the securities market refers to a market characterized by a high level of flexibility, enabling a rapid response in securities prices to changes in the analysis results of data and information flowing into the market. This ultimately leads to achieving equilibrium between the market value and the true value of the security. The market is deemed efficient if prices reflect the information system about the performance of the company issuing the securities traded in the market, according to a set of necessary conditions for efficiency, which require: (Miftah & Maarefi, 2010, p. 182)

- Complete competition among all market participants.
- Availability of accurate financial and non-financial data pertaining to traded companies within the market.
- Prompt and cost-effective disclosure of this information to all market participants simultaneously.

3.2. Levels of Financial Market Efficiency:

Efficiency is considered a relative concept rather than an absolute one. Therefore, researchers divide efficiency into three levels, namely: (Messadaoui ,2014, p. 12)

- **Weak level:** This level implies that prices move randomly, meaning that past price movements do not guide future price movements. In this scenario, investors cannot attain abnormal profits by using historical price data.

- **Moderate level:** This means that prices reflect both historical and current information, and investors cannot achieve abnormal profits by studying published financial reports and available information. The main reason for not achieving abnormal profits is that current and historical information has already influenced prices.

- **Strong level:** This level signifies that prices reflect both current, historical, and private information. Market participants will not be able to achieve abnormal profits through this private information, as it will already be reflected in the prices. Therefore, no investor has the ability to monopolize information that may impact the price, and likewise, no investor will achieve profits exceeding normal profits. Achieving this condition not only requires the market to be efficient so that prices reflect all available information, but also requires the market to be complete, where all information is made available to everyone simultaneously.

3.3. Types of Efficiency in Financial Markets:

There are two types of efficiency in financial markets, as follows:

a. Perfect Efficiency:

The concept of perfect efficiency refers to the market's ability to rapidly and instantaneously adjust the prices of financial assets according to the content of the information entering the market, without any time gap between analyzing the new information and reaching conclusions regarding the fair price or equilibrium price of the security. (Hanafi, 2004, p. 185)

For a market to be perfectly efficient, the following conditions must be met: (Institute, 2004, p. 9)

- Information about the market must be available to everyone simultaneously and at no cost.
- There should be no restrictions on transactions, such as transaction costs, taxes, or other barriers.

- Investors must have the right to buy or sell the quantity of stocks they desire without conditions, easily and smoothly.
- There must be a large number of investors in the market, ensuring that no single investor can influence the price of the financial asset.
- Investors must be rational, meaning they aim to maximize the utility they derive from their wealth.

b. Economic Efficiency:

In the context of economic efficiency, it is expected that some time will elapse between the arrival of information to the market and its impact on stock prices. This means that the market value of a stock may remain above or below its true value for some time. However, due to the cost of information, taxes, and other investment costs, the difference between the two values will not be significant enough for investors to achieve abnormal profits in the long run. (Essam Hussein, 2008, p. 32)

In general, it is important to consider that achieving economic efficiency in capital markets requires the fulfillment of two essential conditions: operational efficiency and pricing efficiency.

3.4. Requirements for Capital Market Efficiency:

An efficient market is one that achieves an optimal allocation of available resources, ensuring that these resources are directed toward the most profitable areas. In this regard, an efficient market plays two roles, one direct and the other indirect: (Messadaoui , 2014, p. 13)

- **Direct Role:** This is based on the fact that when investors purchase shares of an establishment, they are essentially buying future returns. This means that establishments with promising investment opportunities will be able to easily issue more shares and sell them at a favorable price, resulting in increased issuance proceeds and a lower average cost of capital.

- **Indirect Role:** Investors' willingness to trade the shares issued by an establishment serves as a safety indicator for lenders. This implies that the establishment can obtain additional financial resources by issuing bonds or entering into loan agreements with financial institutions, typically at a reasonable interest rate.

The concept of efficiency remains somewhat unclear and requires further clarification. To achieve the efficient allocation of available financial resources, the following essential characteristics should be present: (Messadaoui , 2014, pp. 13-14)

- **Allocational Efficiency:** The concept of allocation efficiency refers to the market's ability to ensure the optimal allocation of available resources, directing them to activities with the highest returns. This means that capital flows to investment projects with high returns and reasonable risk.
- **Operational Efficiency or Internal Efficiency:** Often referred to as internal efficiency, it reflects the market's ability to create a balance between supply and demand without incurring high costs for market participants. It ensures that no individual or entity (such as traders, specialists, or market makers) can achieve a higher profit margin.
- **Pricing Efficiency or External Efficiency:** Sometimes referred to as pricing efficiency or external efficiency, it denotes the availability of new information about the securities being traded in the market. This information should be accessible to all investors and market participants, spread quickly, and be inexpensive to obtain. It also aims to ensure that all participants have equal opportunities to make profits, making it difficult for anyone to achieve unfair gains at the expense of others. Pricing efficiency is largely dependent on operational efficiency. This can be achieved by allowing free entry to the markets and fostering competition among brokers, which ensures that transactions are conducted in a way that prevents the accumulation of monopolistic profits.

4. The Role of Information Technology in Improving Financial Market Efficiency

The use of information and communication technology in financial markets serves as a fundamental means to provide the information necessary for achieving financial market efficiency. This can be understood through the significance of information in achieving market efficiency and the advantages offered by electronic trading, as follows:

4.1. The Significance of Information in Achieving Financial Market Efficiency

The efficiency of financial markets relies on the availability of adequate information about various investment opportunities, accessible to investors at a reasonable cost. Stock exchanges serve as suitable mechanisms for pricing these capital assets, as prices are influenced by the flow of information to investors. The greater the market efficiency, the fairer and closer to their true value the

securities prices become. Information plays a critical role in determining the efficiency of the market and its ability to perform its functions. The relationship between efficiency and the availability of information is inverse, meaning that the quality and availability of information are fundamental to the efficiency of financial markets. Investors with access to the same level of information can achieve returns, but market efficiency cannot be achieved without sufficient and appropriate information. The quality of information available correlates with market returns based on specific characteristics. (Shamsuddin Ashraf, 2005, pp. 25-26) Market efficiency cannot be achieved without the information provided to it possessing certain characteristics.

a. Information characteristics:

To serve its users effectively, particularly small investors, information must possess specific characteristics. These attributes are outlined in the International Financial Reporting Standards (IFRS) by the Financial Accounting Standards Board (FASB), as detailed by (Ben Ammar, Jdidane , & Ben Bouziane , 2013, p. 258), they include:

- **Reliability:** Information is deemed reliable if it is free from material errors and bias, accurately representing events and transactions. This characteristic encompasses three secondary attributes: verifiability, neutrality, and faithful representation.
- **Appropriateness:** Information should be suitable for the needs of decision-makers. Information possesses the characteristic of appropriateness when it influences the economic decisions of users by assisting them in evaluating past, present, and future events. This characteristic encompasses three secondary attributes:
 - **Timeliness:** Timeliness refers to providing information when it retains its relevance and capacity to impact decision-making processes. Sacrificing some degree of precision in favor of timeliness may be appropriate, considering the relative importance of the information.
 - **Feedback Value:** This refers to information aiding the information user in evaluating the accuracy of their previous forecasts, thus assessing the outcomes of decisions based on those forecasts.
 - **Predictive Value of Information:** This is the property of information that assists users in increasing the likelihood of

correcting predictions about the outcomes of present events. Predicting and consequently making decisions cannot occur without the availability of accounting information capable of interpretation and prediction. Prediction can occur without decision-making, but decision-making cannot occur without prediction.

The use of information and communication technology in financial markets has solidified the attributes of information. Information serves to cultivate and enhance knowledge, reduce uncertainties in any given scenario, and is characterized by accuracy, relevance, timely availability, comprehensiveness, and regularity in dissemination. This fosters equity in providing data to all investors equally. In an efficient market, competition among investors is intense. Many investors seek undervalued stocks, priced lower than their true worth. This price volatility is a result of the influx of information and the response of financial product prices to it. Consequently, investors can gather and analyze this information to make informed investment decisions.

The significance of financial information is also evident in the confidence it instills in investors and market participants regarding the efficiency of the financial market. This confidence level hinges on the quality and quantity of information accessible to all investors at a minimal cost yet yielding substantial benefits. However, it's imperative that this information accurately reflects real indicators pertaining to the entities issuing financial securities, prevailing market conditions, and the broader economic landscape of the country. Furthermore, the available information in the market assists investors in determining the required rate of return on various investments based on their associated risks. This leads to an expansion of the market size, an increase in the number of participants, and the volume of transactions. Ultimately, this results in mobilizing savings and directing them towards the most profitable investment opportunities, achieving efficient allocation of financial resources, and consequently realizing economic development objectives and enhancing the efficiency of financial markets. However, unequal access to information among market participants can negatively impact both investors' decisions and the efficiency of the securities market. When an investor perceives inequality in accessing information about a specific security, it may deter them from engaging in transactions involving that security.

Consequently, this can lead to a decrease in market activity and a reduction in its size due to a decline in the number of securities traded at any given moment. Additionally, information asymmetry can lead to increased transaction costs and decreased liquidity, resulting in a reduction in the number of participants in the market. Moreover, monopolizing information by a specific group of investors can turn the securities market into a speculative market, leading to mispricing and inefficient allocation of available financial resources. Furthermore, inefficiency in the information system can result from delays in disseminating information and data or the lack of appropriate characteristics in the announced information. (Al-Jouzi & Al-Omari, 2017, pp. 121-122)

4.2. Advantages of Electronic Trading:

The use of information and communication technology in financial markets is embodied in the adoption of electronic trading. This is not a new concept; Fisher Black proposed the stages of digitizing financial markets within an electronic communication network as early as 1971. This network is managed by computer terminals connected to a central system, which facilitates the execution of trades through advanced communication systems used to send and confirm buy and sell orders by brokers. These orders are then executed in the form of bids and asks, alleviating pressure on specialists and market makers. Innovations and creativity in communication technology are the focal points of digitizing securities trading operations. The Nasdaq Stock Market is considered a pioneer in replacing traditional trading with electronic trading. (Hisham Talaat Abdel Hakim & Dalal Emad Abdul Hussein, 2016, p. 254)

The use of electronic trading in the securities market offers the following advantages:

- Record speed in executing buy and sell transactions from any location the investor chooses, without needing to be present at the market building.
- Access to information about traded securities at any moment to make appropriate investment decisions.
- Instant buying and selling based on information published online, enabling the execution of numerous transactions due to the speed of clearing and settlement, and the receipt of investment certificates.
- Increase in the number of investors and trading volumes, attracting foreign capital and enhancing market liquidity.

- Enhances market stability by balancing supply and demand, while accommodating price-related fluctuations. It also provides transparency in transactions, price structures, and trading volume data, thereby improving market quality through reduced operating costs, increased liquidity, and ensuring efficient pricing of securities. Hence, it can be concluded that technological progress and the utilization of computers have significantly facilitated the integration and harmonization of global financial markets. These markets have become interconnected through highly advanced means, leading to increased market capitalization of global stock exchanges, improved liquidity, and smoother capital movement across markets. This empowers investors to access market information at minimal costs and in real-time, monitor price movements across various financial markets, and address challenges related to measuring, monitoring, and managing financial risks effectively.

Moreover, it streamlines the pricing and trading of innovative financial instruments developed through financial engineering and facilitates the management of transaction records across international financial hubs.

Moreover, the increasing pressures of competition in the financial services sector have led to further advancements and innovations in the use of information software to complete transactions. This creativity has expanded in various forms related to structures such as electronic banks, electronic stock exchanges, online brokers, and electronic employment companies, as well as financial tools such as credit cards, electronic accounts, and financial derivatives. (Rajraj, 2013, pp. 71-72)

However, the use of information and communication technology has a downside, especially in inefficient financial markets. With the integration of markets through financial liberalization and the globalization of capital flows, the risks faced by these financial markets have increased. They have become arenas for stock and bond traders and speculators, making them susceptible to various crises and the sudden outflow of capital, which exposes them to instability and financial crises, as occurred in Mexico in 1994. (Al-Zyoud & Abu Zaid, 2007, p. 84)

5. Conclusion:

The remarkable advancements in information technology have resulted in numerous ways to utilize this technology. This digital revolution offers a significant opportunity for markets to improve their efficiency by providing a cohesive framework for knowledge transfer and generation, information flow, and swift, appropriate decision-making. This enhances the practical and organized execution of operations, protects resources, and helps prevent and mitigate fraud.

➤ Study Results:

- Information networks aim to facilitate the rapid, low-cost delivery, transfer, and storage of information.
- The use of advanced information and communication technology has improved the efficiency of the financial market.
- Information and communication technology contributes to achieving greater fairness, speed, and ease in executing orders, as well as facilitating the monitoring of trading operations and the immediate dissemination of information.
- Information and communication technology has contributed to improving the pricing efficiency of the financial market by quickly delivering information to all participants, ensuring the principle of equal opportunities for investors to achieve normal profits. It has also enhanced the operational efficiency of the financial market by reducing the risks associated with the high costs of obtaining information that investors incur to complete their transactions and make investment decisions.
- Modernizing the financial market and implementing an electronic trading system contribute to stimulating investments.
- The adoption of an electronic trading system as a replacement for the traditional manual trading system has provided substantial flexibility and diverse information to brokers. This has facilitated their ability to track executed and pending transactions and conduct quicker analyses of the conditions of companies whose shares are being traded.

➤ Recommendations:

- It is essential to develop the infrastructure for information technology and keep pace with the latest developments in the field of information and communication technology.

- Emphasize the importance of information and communication technology as it enhances and improves the efficiency of financial markets.
- Awareness within financial markets that efficient and effective business performance necessitates the use of advanced technology and investment in human resources to develop programs simplifying procedures and providing information to investors to earn their loyalty and increase their numbers.
- Enhancing expertise in managing risks associated with electronic networks.

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