THE IMPACT OF SOCIAL KNOWLEDGE ON THE EFFICIENCY OF THE FINANCIAL MARKETS: A CASE STUDY ON THE ERBIL STOCK EXCHANGE

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ABSTRACT

This study was designed to investigate the factors that can have an impact on the efficiency of financial markets, and the Erbil Stock Exchange was chosen as a case study. The researchers sought to evaluate the level of social knowledge by concentrating on certain dimensions which have a direct influence on the public's perspective regarding financial markets – namely religion, culture and economic awareness – and the number of people participating in the sale and purchase of stocks and shares. This study tested the hypotheses by applying some statistical analyses, and the outputs are detailed in the tables, figures and factors. According to the results, the efficiency of the stock market is affected by monthly income, culture and religion, and public experience. It was also found that there is no difference in perspective between men and women regarding investing in the stock market. This is supported by the hypothesis test results, which indicated that there is no correlation between gender and economic awareness, number of participators, culture, and religion. The results of the factor analyses show that there is a significant correlation between religion, culture, economic awareness and the number of people participating and social knowledge, and that these factors significantly affect the efficiency of the stock market.

Contribution/Originality: This study is one very few studies which have investigated efficiency of the stock market by testing some crucial factors. This study highlights the consequences of inefficiency in the market and the consequences of the lack of willingness of investors and the public to invest in the stock market, while the financial market positively reflects the economic and financial improvements in Iraq.

1. INTRODUCTION

Financial markets are seen as a key factor in the history of economic development. They are the site of investments and cash savings, whether by members of the public, governments, or financial institutions. Financial markets have provided a fertile field for investments. As Bradosti & Singh (2015) and Mahdi, Jaber, & Mashkour (2018) explain, financial instruments can be invested in by the government, and by domestic and foreign investors. This demonstrates that the doors of financial markets are open to everyone, without discrimination. In addition, the culture, laws, legal perspectives, beliefs and federal regulations of a country have an influence on the financial market in general. This means that each country may have different regulations and perspectives on investment in financial instruments. However, the greater the number of financial instruments, the better, as this shows that the

financial market can provide more opportunities to its participants and there will be more options for investment (Kapar, Olmo, & Ghalayini, 2020).

Financial markets in general can be divided into two different types, money markets and capital markets (Bodie, Kane, & Marcus, 2011). Money markets are for short-term investments and are known as riskless or risk-free markets. If investors are looking to invest short-term, then they should invest in a money market. It has been argued that the financial instruments which are presented in a money market are different from those of the capital market, for example, a Treasury Bill (T-Bill) that has been issued by the government, a certificate of deposit (CD) that is deposited by a bank, or commercial papers that are issued by well-known corporations. The second segment of the financial market is the capital market. Stock markets are a type of capital market and specialize in risky investments. The traders who participate in the capital market are willing to invest long-term. Many financial instruments are provided by the capital market, for instance, treasury bonds and municipal bonds belonging to the government, international bonds which are issued by foreign companies, and corporate bonds and shares (stocks) issued by many companies (Bodie et al., 2011). Many different financial securities exist, which can be traded by participants. Financial literacy and the understanding of investors can influence their decisions regarding investment activities (Li, Li, & Wei, 2020).

Financial markets can be a great mechanism for fund circulation; this means that there will be cash transformation among financial corporations, the government, and the public through the investment of cash in the buying and selling of financial securities. From this point of view, financial markets tend to be more effective if there is a large amount of cash circulating.

2. RESEARCH PROBLEM

The stock market is an organized market for trading stocks, bonds and other financial securities. It has a major role in accelerating economic growth and in the development of the financial sector through motivating, promoting and attracting domestic savings and improving the quality of investment. In addition, its efficiency means greater economic growth and development (Wangmo, Choden, & Dorji, 2018). Therefore, as social knowledge has been a controversial and much disputed subject within the field of finance, the research problem can be formulated in the following question: Does social awareness have an impact on the efficiency of the stock market?

3. THE IMPORTANCE OF THE RESEARCH

As the stock market is a new phenomenon in the Kurdistan region of Iraq, this research attempts to shed light on its economic importance in general, and how it could be more efficient through highlighting social awareness regarding the Erbil Stock Exchange (ESX).

4. RESEARCH MOTIVATION

The motivation for the study came from the realization of inefficiency of the financial market. The research investigates the factors that are the consequence of inefficiency of the market. The first factor that is evaluated is social awareness, which presents the level of social awareness regarding the benefits and activities of the financial market. Second, we evaluate the impact of religion and culture on financial market activities. Third, we evaluate economic awareness, which has a major role in encouraging people to invest in the financial market, and thus it can have impact on the efficiency of the market.

5. RESEARCH OBJECTIVE

It is obvious that financial markets have played an important role recently in the world's financial conditions. The study aims to show the impact of social awareness on stock market efficiency through a set of key objectives:

1. Addressing the impact of social awareness in terms of culture, religion and the economy on the efficiency of the stock exchange.

2. Explaining the factors involved in an efficient stock market and its importance in general for the business environment within a country.

3. Highlighting the effect of social knowledge factors on the efficiency of stock markets and demonstrating which of these have the most significant effect.

6. RESEARCH HYPOTHESIS

Based on the research problem, its importance and its objectives, this study seeks to evaluate the levels of social knowledge in certain dimensions, namely culture and religion, economic awareness and the number of people participating in the stock market, together with demonstrating the association of biographical scales with the efficiency of the stock market. Accordingly, the research hypothesis was formulated in the following way:

Hypothesis 1: *There is a significant association between culture and religion and the efficiency of the stock market in terms of biographical scales:*

A. *The association between culture, religion and the efficiency of the stock market is altered according to gender.*

B. *The association between culture, religion and the efficiency of the stock market is altered according to monthly income.*

C. *The association between culture, religion and the efficiency of the stock market is altered according to years of experience.*

Hypothesis 2: *There is a significant association between economic awareness and the efficiency of the stock market in terms of biographical scales:*

A. *The association between economic awareness and the efficiency of the stock market is altered according to gender.*

B. *The association between economic awareness and the efficiency of the stock market is altered according to monthly income.*

C. *The association between economic awareness and the efficiency of the stock market is altered according to years of experience.*

Hypothesis 3: *There is a significant association between the number of people participating and the efficiency of stock market in terms of biographical scales:*

A. *The association between the number of participators and the efficiency of the stock market is altered according to gender.*

B. *The association between the number of participators and the efficiency of the stock market is altered according to monthly income.*

C. *The association between the number of participators and the efficiency of the stock market is altered according to years of experience.*

Hypothesis 4: *The social knowledge factors (culture and religion, and economic awareness) and the number of participators have a great effect on stock market efficiency.*

7. LITERATURE REVIEW

7.1. Background of the Financial Market

While a variety of definitions of the concept of financial markets have been suggested, this paper uses the definition suggested by Godechot (cited in Mikl-Horke (2010)), that the stock market is a social field where people can fight for a variety of interests and profits. In addition, it has been defined as a financial institution established for the public in which people have a social right to participate (Mikl-Horke, 2010). Other authors have also pointed out that financial markets generally, and stock markets in particular, have been abased under many standards and laws provided by the financial policies of different countries (Massele, Darroux, Jonathani, & Fengju, 2015). Moreover, Musonera & Safari (2008) supported Baker (1984) in describing such markets as the most powerful financial institutions that can persuade investors to invest their capital. It can be argued that they are the basis of modern capitalist societies. Financial markets provide great opportunities for the general public, especially those

from the middle class who do not have a great deal of money. This means that they can save their money by investing their cash in the financial market, and they are free to choose whether to do this long-term or short-term (Bradosti & Singh, 2015). Investing in the financial market is a more widespread practice in the U.S. than in Europe. However, over recent decades, investment in securities has slightly increased around the world (Mikl-Horke, 2010). The market does not have any self-steering mechanisms which can control prices and the number of instruments in terms of quantity and the amount of money. Furthermore, Mikl-Horke (2010) discovered that the interaction between participants in the financial market becomes stronger as a result of social network relations, thus affecting the economic conditions and investors' decisions (Orlean, cited in Mikl-Horke (2010)). However, the key problem with this state of affairs is that interactions among actors can sometimes create problems for the market because investors may imitate each other's actions in terms of purchasing and selling securities. This is supported by Mikl-Horke (2010), who mentions that the quality of the relationships among traders is important because there can be a great deal of collusion, such as insider trading or blatant fraud, and these actions adversely affect the market and economic conditions. Moreover, in the financial markets there are many professional actors who have the essential role of protecting the market's reputation by maintaining the norms of the market and making sure it behaves correctly and fairly towards the public and clients.

7.2. The Purpose of the Financial Market

The major purpose of the stock market is to standardize and organize the financial capital of investors, business organizations, corporations and the government (Massele et al., 2015). The rules and regulations of the stock market allow investors, businesses and corporations to benefit from its services. This means that investors and listed companies can raise their capital by purchasing and selling financial securities when they are issued by companies and corporations. Bradosti & Singh (2015) have said that financial securities are not only issued by companies, but that governments and municipalities also issue financial instruments. For example, there are treasury bills, treasury bonds, municipal bonds and federal agency bonds. Many kinds of financial instrument belong to the government. Furthermore, the holders of these kinds of financial security tend to receive a fixed interest rate. This is supported by Wangmo et al. (2018), who mention a mechanism offered by stock markets through which companies are allowed to expand by issuing financial securities, such as shares and bonds. In addition, governments' budgets can be increased or balanced by issuing financial securities (Bradosti & Singh, 2015). There are many reasons behind the decision to issue different classes of security. First, companies or governments are likely to seek cash from other financial institutions or the public (investors) for long-term projects (Bradosti & Singh, 2015; Massele et al., 2015). Second, sometimes a company will try to grow its capital. This may be because the company needs to meet its industry benchmark. In such cases, financial markets can help business organizations, as well as governments, increase their capital thereby helping them to reach their goals.

7.3. Erbil Stock Exchange (ESX)

Iraq has two financial markets, the Baghdad Stock Exchange and the Erbil Stock Exchange. This research concentrates on the Erbil Stock Exchange, which is the only stock exchange in the north of Iraq. It is in the private sector and is regulated with the strong support of the Kurdistan Regional Government. The capital of the Erbil Stock Exchange amounts to more than $8 million. In addition, the number of stockholders is around 56, which is a small number of participants. These people hold shares in some well-known financial institutions and companies in the Kurdistan region. Certain requirements and conditions have to be fulfilled by financial organizations if they wish to be listed on the Erbil Stock Exchange. The economy of the Kurdistan region was in a sound condition in 2006 as a result of these investment laws, which provided opportunities for Kurdish and foreign investors alike. The economy of the Kurdistan region was able to develop, and investors could also raise capital in different geographical regions. Mahdi et al. (2018) demonstrated that countries can tap into the global market if they have an effective

financial market of their own. They can offer a field of investment for traders from countries with different cultures and social networks.

The stock market is a great place for investing because, as Bradosti & Singh (2015) emphasized, a business needs capital to become profitable. Investing in the financial market is a great chance for people with limited capital to invest in a business, rather than saving their cash at home. Also, individuals can save for their retirement in this way. However, Mahdi et al. (2018) noted that returns and risks both move together. This means that if investors prefer high returns, then they must accept a high degree of risk. However, there are effective strategies for mitigating risk, such as portfolio investments.

7.4. The Relation Between Financial Markets and the Economy

Many previous researchers have found that there is a strong association between the economy and financial markets. They have shown that the market can help economic development. Obviously, the existence of an effective financial market tends to keep funds inside a country, as it has been demonstrated that funds circulate among the public, financial institutions and governments. In addition, the extent to which cash stays inside a country is a measure of the soundness of its economy in general. As Mahdi et al. (2018) have emphasized, economic performance is more likely to be efficient when both domestic and foreign funds are invested in the market. However, Goldsmith (1969) and McKinnon (1973) claimed that there is no association between finance and the economy as a whole. They believe that, far from being an essential factor in developing the economy, finance has no role. This view was later refuted by the research of King & Levine (1993), who argued that there was a positive relationship between the levels of development of the financial sector and the general economy. They stressed that if the level of finance was high, then economic development also tended to be on a high level. More recently, this has been supported by the research of Wangmo et al. (2018), which showed that financial markets can participate in the development of economies, especially when there is stable productivity and liquidity and a smoothly functioning and efficient financial sector. Levine (1991) claimed that investors participated in terms of the capital allocation of firms; when the capital available to companies is extended, the wider economy can grow more quickly. However, Levine did not find a relationship between financial markets and economic growth. The findings of King & Levine (1993), on the other hand, stressed that through the provision of diverse services – especially the kind of services offered by stock markets – the impact on economic growth can be considerable. Companies can grow their capital more easily by participating in an efficient and developed market (Demirgüç-Kunt & Maksimovic, 1995). The stock market can also have a significant role in creating new businesses (Michelacci & Suarez, 2004).

7.5. The Factors of Efficiency of the Financial Market:
7.5.1. Social Knowledge and Economic Awareness

The small number of participants in the Erbil Stock Exchange can be attributed to the lack of financial knowledge among investors, the public, and even some financial institutions. This research aims to highlight the effect of social knowledge on financial markets, and on Kurdistan's market in particular. However, this is not exclusively a challenge facing the stock market in Kurdistan. As Li et al. (2020) and Rooij, Lusardi, & Alessie (2011) discovered in the Netherlands, financial literacy and knowledge have a major impact on people's perspectives. This is further supported by the research of Atkinson & Messy (2012), who investigated some 21 countries. They found that in Albania, Armenia, the Czech Republic, Estonia, Germany, Hungary, Ireland, Malaysia, Norway, Peru, Poland, South Africa and the UK, a huge proportion of the population had no financial education. Where there is a lack of financial knowledge, the public tend to keep their distance from the stock market. Recently, Wangmo et al. (2018) have shown how few actors there were in the Royal Securities of Bhutan Limited. This was due to a lack of knowledge, skills and experience of trading in financial instruments. Moreover, there was insufficient information regarding the rules, functions and operations of the market. Few people understood the benefits of the financial

market, and some did not know what a financial market was. Qureshi, Mehmood, & Sarwar (2014) found that social relations are likely to have an essential role in terms of increasing social knowledge because, before deciding whether or not to contribute to the market, individuals tended to ask their friends and relatives about its performance.

The INFE (2011) and Li et al. (2020) have stated that a financial education makes investors more confident and better able to ascertain risks. Such knowledge is essential for traders operating in a complex financial market, and there will be better return on investment. However, there is a positive relationship between financial knowledge and financial behavior. Both tend to affect the investor's perspective on the market. This means that the behavior of the individual has a credible impact on the efficiency of the market.

7.5.2. Culture and Financial Development

Culture is an important dimension to consider when investigating the factors which affect the efficiency and development of financial markets. Culture has been defined by Guiso, Sapienza, & Zingales (2006) as an ethnicity and religion which consist of beliefs and values transmitted from generation to generation. Moreover, society, trust, self-determination, respect and obedience are an index which is aggregated by culture, and these five different components are incorporated by culture (Tabellini, cited in Dutta & Mukherjee (2015)). It has been found that the development of financial markets can be affected by the culture of a country. Obviously, the culture of each country is different and there will be different social perspectives on financial markets. Unfortunately, in the Kurdistan region, no social consideration is given to the stock market. It has become part of Kurdish culture to save one's cash at home. This might be because in this region, they do not have a safe situation in term of politically and financially. As one might expect, the Kurdistan region is not stable in term of political and economic conditions, especially during the last five years. Many individuals have so little trust in financial institutions that they do not even save their money in banks.

7.5.3. Financial Information and the Quality of Information

The stock market has a vital function, which is to aggregate information in order for investors to make decisions (Demirgüç-Kunt & Maksimovic, 1995). The importance of such information has been demonstrated by Bodie et al. (2011), who pointed out that by using information investors can determine which firms will flourish and which are likely to fail. On the basis of such information and the perceived future profitability of a company, share prices rise. However, the price of shares can also tumble if the company's prospects are poor. Furthermore, it can be noted that information tends to have an influence on the stock market in a way that enables the market to be efficient and sustainable (Massele et al., 2015).

Another major factor here is the quality of the information. Systematic policing of the market is more likely to maintain its honesty. Also, if the stock market is serious about providing accurate data, it will investigate and ensure the fairness of transactions (Mikl-Horke, 2010). It is important that people can trust the information belonging to companies that are listed on the stock market. The study by Qureshi et al. (2014) found that the number of participants is more likely to decrease when there is an unreliable market and investors are more doubtful about trading. For this reason, investors should be careful when using information. They have to exercise judgment when deciding which information is important to them (Qureshi et al., 2014). Trust should exist between giver and taker; Pan, Wu, & Zhang (2020) pointed out that financial advice does not have any meaning if there is no trust or quality information. As a result, financial transactions will be trusted and fair, and from this point of view traders will be more confident about each transaction that occurs. Otherwise, the number of transactions will decrease when no trustworthy information is available (Guiso, Sapienza, & Zingales, 2008).

7.5.4. The Effect of Liquidity on the Efficiency of the Stock Market

The efficiency of the market is associated with market capitalization, liquidity and turnover. The liquidity of the market is another major aspect affecting its efficiency. There will be high marketability when there are a high number of participators. Massele et al. (2015) mentioned that one of the major challenges facing the stock market is weak liquidity, when there are no transactions (buying and selling of shares), not enough knowledge or awareness about the stocks and too few market contributors. As a result of these challenges, a financial market cannot be attractive because there is inadequate liquidity. Furthermore, Elliott (2015) described how a market with high liquidity means that there is a credible level of activity (trading) and the market transactions tend to be effective, in the sense that a huge number of purchasing and selling transactions occur at very high speed. This means that there is a strong association between speed and the number of transactions. Moreover, it has been suggested that sellers and buyers can find each other easily when there are high levels of supply and demand. A study by Amihud & Mendelson (2000) found that the cost of capital for a company tends to be lower if there is high market liquidity. Another important point the authors made is that the price of securities is more likely to increase when there is high liquidity. Sometimes the liquidity of the market is affected by the deals of investors. Obviously, buyers always want to buy shares at a lower price and sellers want to sell them at a higher price. As a result, neither party can secure a final deal and this can affect the liquidity of the market (Wangmo et al., 2018). In addition, the stability of stock prices can also have an impact on the liquidity of the market. Levine (1991) researched the effect of stock markets on economic development in terms of market liquidity and found that the liquidity of the stock market could be a major clue when estimating future long-term growth. This could be one aspect that investors can use to estimate future profitability. Since stock prices can be difficult to predict, the liquidity of the market can be a less obvious way for traders to anticipate future earnings (Ruan & Zhang, 2021).

8. METHODOLOGY

The researchers, in the light of the importance of the objectives and the hypotheses, depended on descriptive analytical methods in preparing the research. These are as follows:

- The first approach is based on the extrapolation and analysis of the literature (books, letters, Arab and foreign periodicals, and research from the international information network) related to the social knowledge aspects of financial markets for the purpose of grounding a scientific research topic.
- The second approach depends on exploratory study by using a questionnaire to determine the impact of social knowledge on the efficiency of the financial markets.

8.1. Data Analysis and Results

8.1.1. Frequency Table

A frequency table is built by arranging collected data values in ascending order of magnitude with their corresponding frequencies. This gives us a summarized grouping of data divided into mutually exclusive classes and the number of occurrences in a class. A frequency table can be used for both qualitative and quantitative data. The uses of frequency distribution are as follows:

1. It helps in analyzing the data.
2. It helps to estimate frequencies for the population on the basis of the sample.
3. It eases the computation of various statistical measures.

In this study of factors, as well as the association of biographical scales with various terms relating to religion and culture, we have 37 variables that are all categorical data. The research has used frequency tables for some of them, giving a better visual display of the data, which is one way to organize data so that it makes more sense. From the questionnaires that were distributed to 153 respondents as part of the survey, only two were excluded

from the data analysis due to having extreme values for some variables. Male respondent numbers were greater than female respondent numbers, with 96 (63.6%) and 55 (36.4%), respectively.

Table-1. Distributive statistics of the sample.

Gender		Number of Respondents (%)
	Male	96 (63.6%)
	Female	55 (36.4%)
Age		
	< 30	44 (29.1%)
	31 to 40	81 (53.6%)
	41 to 50	17 (11.3%)
	> 50	9 (6.0%)
Qualification		
	Bachelor's degree	74 (49.0%)
	Master's Degree	60 (39.7%)
	Doctorate Degree	17 (11.3%)
Years of Experience		
	5 years or less	33 (21.9%)
	From 6 to 10 years	45 (29.8%)
	From 11 to 15 years	52 (34.4%)
	More than 15 years	21 (13.9%)
Monthly Income		
	$500 and under	26 (17.2%)
	$500 − $2000	96 (63.6%)
	$2000 and over	29 (19.2%)

With reference to age groups, over half of the participants (81) were aged between 31 and 40 years old (53.6%). The second largest percentage was formed by the group aged under 30 years old, with 44 (29.1%), and the remainder of the age groups were between (11.3% and 6%) for the 41–50 and over 50 groups, respectively.

Regarding the level of education of the participants, the majority of respondents had obtained a bachelor's degree (74 people, or 49%), followed by a master's degree (60 people, or 39.7%). It is interesting to see that 17 (11.3%) of the recipients of the questionnaire had a PhD. In addition, it was believed that years of experience as well as monthly income might also be interesting to explore. This was because they might be related to the research question about the efficiency of the stock market, as provided in Table 1. In relation to discovering how well the respondents were aware of the stock market, Table 2 explores the results. It turned out that 115 (76%) of the participants had some idea about the stock market in Erbil, while 31 (21%) had no idea and 5(3%) did not wish to share their thoughts. Moreover, 73 (48%) were found to be aware of the existing stock market in Erbil, in comparison to 68 (45%) who were not. This means that about 50% of the participants were unaware of a functioning stock market in the area. It is worth mentioning that 93 (62%) of the people in the study reported that they had not seen any advertising about the stock market, whereas just 52 (34%) said they had.

Table-2. Awareness of stock market dimensions.

| Awareness of Stock Market Dimensions in Erbil	Yes	No	Cannot Say
Do you have any idea about stock market?	115 (76%)	31 (21%)	5 (3%)
Are you aware of the Erbil Stock Exchange?	73 (48%)	68 (45%)	10 (7%)
Do you have any knowledge about financial instruments?	88 (58%)	56 (37%)	7 (5%)
Are you aware of the purpose of the stock market?	86 (57%)	58 (38%)	7 (5%)
Do you believe that there is a law regarding the Erbil stock market that protects the rights of the public?	28 (19%)	104 (69%)	19 (13%)
Do you watch any news about the stock market in general, or the Erbil stock exchange specifically?	34 (23%)	112 (74%)	5 (3%)
Have you ever seen any advertising for the stock market?	52 (34%)	93 (62%)	6 (4%)
Is there enough information in the Erbil Stock Exchange about listed companies?	12 (8%)	120 (79%)	19 (13%)

Awareness of Stock Market
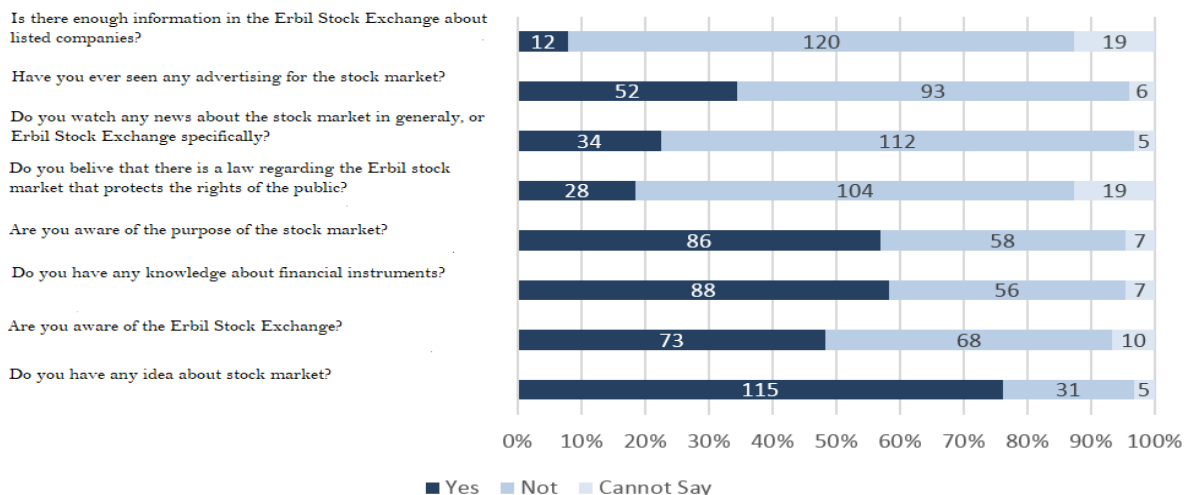
Figure-1. Social knowledge on stock market dimensions.

8.1.2. Hypotheses Tests

Table 3 displays the test of association between the biographical scale by gender for religion and culture and the efficiency of the stock market. The researcher wanted to find out how likely gender was to be related to religion and culture in terms of stock market efficiency. Each item of religion and culture considered was first tested against gender, and then the overall perspective of the religious and cultural dimensions was employed. As stated, the table below reveals the outcomes of the Chi-square test approach to detect the association between the items and gender. Based on the results, there is no association at all of the dimensions of religion and culture in relation to the efficiency of the stock market and gender. This is due to having large p-values (greater than the 0.05 significant level), which leads us to conclude that regardless of gender, the efficiency of the stock market stays the same in terms of religious and cultural beliefs. Thus, hypothesis 1A, which states that there is an association between overall religion and culture which alters the efficiency of the stock market based on gender, is rejected. However, with regard to monthly income this discussion is reversed, as the p-value (0.043 < 0.05) forces us to state that there is some association between overall religion and culture that alters the efficiency of the stock market based on monthly income. This can be reported as those who had a monthly income of less than $500 had a different point of view compared to those earning more than that. Furthermore, years of experience also had an influence, from an overall perspective, on the efficiency of the stock market. The more experience respondents had, the more likely the association was to be efficient, as the p-value was far less than 0.05. According to this statistical result, hypotheses 1B and C are accepted. This is supported by Singh, Li, & Roca (2017), who pointed out that culture can have an important role in shaping investors' choices regarding investments in the financial market. This is demonstrated in Table 3.

Similarly, a test of associations was also applied to the economic awareness dimension, along with considering the three biographical items of gender, monthly income, and years of experience. The study reached the same conclusion as above, with both income generation and years of experience found to be statistically significant. For this reason, hypotheses 2B and C are accepted. However, hypothesis 2A has to be rejected. Similarly, like the abovementioned argument, the association of gender with economic awareness of stock market efficiency was not statistically significant, and this is supported by Klapper & Lusardi (2020), who found that financial knowledge does not differ significantly between men and women, especially in developed countries. Conversely, Atkinson & Messy (2012) demonstrated the relationship of gender to financial knowledge. Interestingly, financial knowledge tends to

differ between men and women in the same way that the knowledge of men is greater than that of women, as presented in Table 4.

Table-3. Result of association test statistics (test of association between culture, religion and the efficiency of the stock market in terms of biographical scales).

Items	Biographical Scales	Strongly Agree	Neutral	Strongly Disagree	Chi-square value	P-value
Overall point of view corresponding to Religion and Culture	Male	60	28	8	1.139	0.566
	Female	39	12	4		
	< $500 Monthly Income	86	31	8	4.094 (a)	0.043
	> $500 Monthly Income	13	9	4		
	< 10 years' experience	56	13	4	6.985 (a)	0.008
	> 10 years' experience	43	27	8		

Notes: 1. To avoid violating any assumption of the test, the related answers were combined only for this part. 2. A GAMA test was used since they are both ordinal types. A GAMA is a statistical approach used to find the level of association between two groups when their data type is ordinal.

Table-4. Results of association test statistics (test of association) – Economic Awareness.

Items	Biographical Scales	Strongly Agree	Neutral	Strongly Disagree	Chi-square value	P-value
Overall point of view corresponding to Economics Awareness	Male	42	53	1	0.222	0.895
	Female	25	29	1		
	< $500 Monthly Income	6	20	0	0.484 (a)	0.014
	> $500 Monthly Income	61	62	2		
	< 10 years' experience	25	52	1	0.464 (a)	0.002
	> 10 years' experience	42	30	1		

Notes: 1. To avoid violating any assumption of the test, the related answers were combined only for this part. 2. A GAMA test was used since they are both ordinal types.

Furthermore, to answer the third hypothesis of this study, it was necessary to take the same approach as above. However, unlike the other two dimensions, the differences with reference to biographical scales and the efficiency of the stock market turned out not to be statistically significant at any point. The p-values of the test were all greater than 0.05, therefore, we can conclude that there is no association between them. This result is supported by previous research, which found that market profitability was affected by the knowledge of the general public, and the lack of experts and skilled investment. As a result, there will be less opportunity to list companies on the stock market. Consequently, many companies have a strong tendency to raise their capital through loans from commercial banks or other financial institutions. This means that companies tend to rely on internal resources instead of issuing bonds and shares (Demirgüç-Kunt, 1992). Companies could be discouraged from listing themselves on the market for numerous reasons. For example, Wangmo et al. (2018) pointed out that one reason is because some companies are not willing to share their net income. Another reason could be ownership; many firms do not wish to have external investors as owners of the company. Another important point is that there are other sources of funding that companies can rely on, such as loans from financial institutions. Furthermore, some companies might not be aware of the benefits of listing on the stock market. They may even be unsure of how to go about being listed because there are some processes and operations that companies must implement before they are allowed to be listed on the market (Mensah et al., cited in Wangmo et al. (2018)). This is presented in Table 5.

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Items	Biographical Scales	Strongly Agree	Neutral	Strongly Disagree	Chi-square value	P-value
Overall point of view corresponding to the number of participants	Male	79	17	0	4.118	0.128
	Female	43	10	2		
	< $500 Monthly Income	19	5	2	0.293	0.277
	> $500 Monthly Income	103	22	0		
	< 10 years' experience	61	15	2	0.183	0.365
	> 10 years' experience	61	12	0		

Notes: 1. To avoid violating any assumption of the test, the related answers were combined only for this part. 2. A GAMA test was used since they are both ordinal types.

8.1.3. Factor Analysis

Factor analysis is a way of identifying patterns in data and expressing the data in such a way that highlights their similarities and differences. Also, through factor analysis we can detect the variables that have the most impact on a phenomenon. Since patterns can be hard to find in the data of high dimensions where the luxury of representation in a graph is not available, factor analysis is a powerful technique for analyzing data. There are various ways of doing this, and Principal Component Analysis (PCA) is one of the most used. The main advantage of PCA is that, once you have found these patterns in the data, you can compress the data by reducing the number of dimensions without losing much information.

Table 6 shows several important parts of the results: the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. The KMO statistic varies between 0 and 1. Since the value (0.887) is greater than 0.5, using factor analysis is likely to be appropriate.

Table-6. Test of KMO and Bartlett's Measure.

Kaiser–Meyer–Olkin Measure of Sampling Adequacy.		0.887
Bartlett's Test of Sphericity	Approx. Chi-Square	2308.886
	df	276
	Sig.	0.000

Bartlett's measure tests the null hypothesis that the original correlation matrix is an identity matrix. For factor analysis to work, we need some relationships between variables, and if the r-matrix were an identity matrix, then all correlation coefficients would be zero. Consequently, it is preferable that this test should be significant, which it is.

Table 7 demonstrates the main results of the factor analysis. As can be seen, four factors have been extracted using PCA, which explains the total variability of the data. The four extracted factors were chosen automatically by the program and only those which have eigenvalues greater than one. The % of Variance column indicates how much of the variability in the data has been modelled by the extracted factors. All four factors are the main factors which affect the efficiency of the stock market. Hypothesis 4 has been accepted, and based on the collected data, the total variability from those factors is 63.468%, and each factor explains 42.129%, 10.124%, 6.565% and 4.650%, respectively. This is supported by the INFE (2011), who showed that many companies and individuals can reach a successful position when they combine all the elements – for instance, knowledge, awareness, skill, attitude and behavior – that significantly affect financial decisions. The scree plot in Figure 2 shows that the four components are an appropriate solution.

Table-7. Total variance of each component.

| Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.111	42.129	42.129	5.205	21.689	21.689
2	2.430	10.124	52.253	4.420	18.417	40.105
3	1.575	6.565	58.817	3.729	15.537	55.642
4	1.116	4.650	63.468	1.878	7.825	63.468
5	0.942	3.924	67.392			
6	0.869	3.619	71.011			
7	0.785	3.269	74.279			
8	0.696	2.900	77.180			
9	0.675	2.812	79.991			
10	0.583	2.429	82.420			
11	0.553	2.302	84.723			
12	0.537	2.236	86.959			
13	0.469	1.954	88.913			
14	0.423	1.763	90.676			
15	0.368	1.532	92.208			
16	0.349	1.456	93.664			
17	0.265	1.102	94.766			
18	0.226	0.943	95.709			
19	0.220	0.915	96.624			
20	0.206	0.857	97.480			
21	0.177	0.735	98.216			
22	0.155	0.646	98.861			
23	0.146	0.606	99.468			
24	0.128	0.532	100.000			
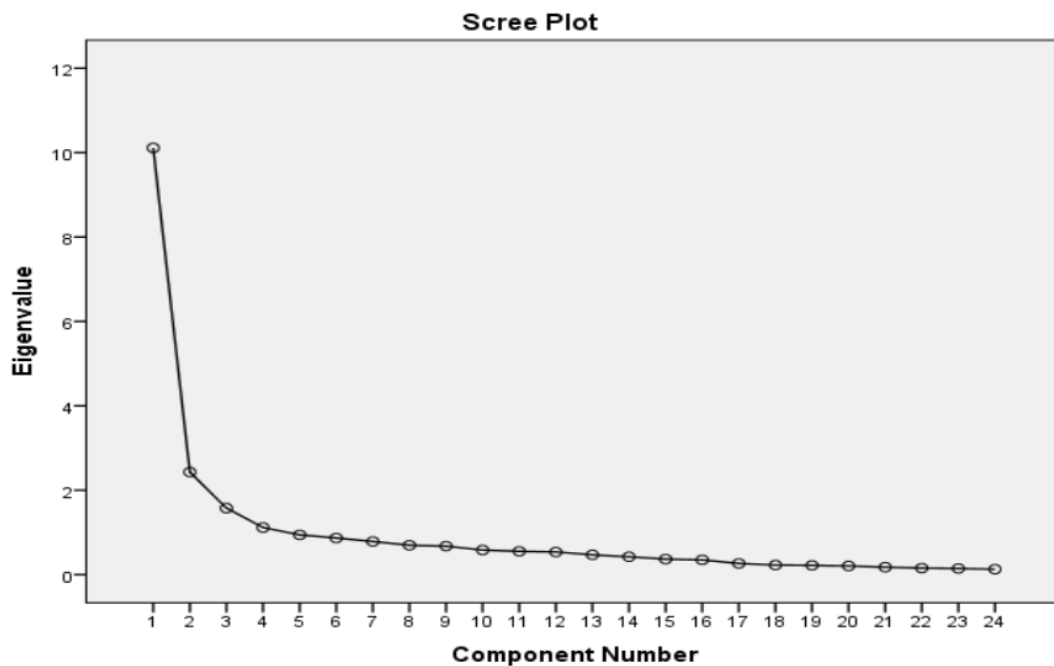
Figure-2. Scree plot of Eigenvalues vs. components.

Factor 1. The first factor always has the highest impact on the aspect being considered. In selecting the most effective factor regarding the efficiency of the stock market in the Erbil area, the first factor explains 42.129% of the total variance (i.e., how much this factor increases the efficiency of the stock market). The variables which also have an influence on these factors are as follows in order:

Table-8. This illustrates the significant factors that have an impact on leaving decisions, and these are dependent on significant variables.

	Component				Communalities
	1	**2**	**3**	**4**	
8. Economics Awareness	0.812				0.7
5. Economics Awareness	0.664				0.634
7. Economics Awareness	0.658				0.64
1. Economics Awareness	0.633				0.515
6. Economics Awareness	0.618				0.498
2. Economics Awareness	0.564			0.471	0.568
4. Economics Awareness	0.696				0.535
3. Economics Awareness	0.466				0.445
8. Number of Participants		0.753			0.675
7. Number of Participants		0.781			0.661
4. Number of Participants		0.770			0.777
3. Number of Participants		0.761			0.706
5. Number of Participants		0.758			0.668
6. Number of Participants		0.710			0.594
2. Number of Participants		0.788			0.685
1. Number of Participants		0.451		0.527	0.661
8. Religion and Culture			0.628		0.709
2. Religion and Culture			0.626		0.561
4. Religion and Culture			0.599		0.489
6. Religion and Culture			0.863		0.81
5. Religion and Culture			0.775		0.741
7. Religion and Culture			0.723		0.629
1. Religion and Culture			0.682		0.703
3. Religion and Culture			0.583		0.629

Note:
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in six iterations.

Factor-1. Factor analysis in terms of economic awareness.

No.	Variable	Item	Factor Loading
1.	Investing in the stock market guarantees your future retirement.	8. Economics Awareness	0.7
2.	Investing in the stock market provides a steady income.	7. Economics Awareness	0.64
3.	The stock market makes you rich quickly for a short period but will always result in losses eventually.	5. Economics Awareness	0.634
4.	The stock market is only good for wealthy people.	2. Economics Awareness	0.568
5.	Investing in the stock market is not easy and requires a lot of economic knowledge and background.	4. Economics Awareness	0.535
6.	There is sufficient economic awareness and knowledge regarding investing in the stock market.	1. Economics Awareness	0.515
7.	Investing in land and property always gives higher returns than the stock market.	6. Economics Awareness	0.498
8.	Invest in the stock market only if you have extra funds.	3. Economics Awareness	0.445

Factor 2. This factor ranks in second place and explains 10.124% of the total variance. The contributing variables are given below.

Factor 3. This factor ranks in third place and explains 6.565% of the total variance. The contributing variables are given below.

Factor-2. Factor analysis in terms of number of participants.

No.	Variable	Item	Factor Loading
1.	Having better information about the listed companies will lead to the participation of a greater number of investors.	4. Number of Participants	0.777
2.	Complete knowledge of the stock market will increase the number of investors.	3. Number of Participants	0.706
3.	There are not enough listed companies in the Erbil stock market.	2. Number of Participants	0.685
4.	There is an efficient auditing mechanism for the information provided by the listed companies in the Erbil Stock Exchange.	8. Number of Participating	0.675
5.	More investors will participate if the Erbil stock market carries out awareness campaigns for investors.	5. Number of Participants	0.668
6.	The number of investors will increase if the government supports and promotes investment in the Erbil Stock market.	7. Number of Participants	0.661
7.	You feel more satisfied with your investment in other areas, rather than in stock market.	1. Number of Participants	0.661
8.	Your level of awareness has an impact on your willingness to invest in the stock market.	6. Number of Participants	0.594

Factor-3. Factor analysis in terms of religion and culture.

No.	Variable	Item	Factor Loading
1.	Your religion prohibits paying or receiving interest because it will result in exploitation and earning wealth unfairly.	6. Religion and Culture	0.81
2.	Your financial decisions are guided by religious principles.	5. Religion and Culture	0.741
3.	Investing in the stock market is considered to be an undesirable activity, unethical and immoral, and should be forbidden.	8. Religion and Culture	0.709
4.	Having religion guidelines for investing in the stock market will change your thoughts about future investment in stock market.	1. Religion and Culture	0.703
5.	Financial transactions based on uncertainty, short selling and options trading are prohibited by your religion.	7. Religion and Culture	0.629
6.	Your family structure and social environment affects your investment decisions.	3. Religion and Culture	0.629
7.	Saving money with no investment in the stock market is more secure.	2. Religion and Culture	0.561
8.	Investing in the stock market is like gambling.	4. Religion and Culture	0.489

The factor 4 is less important, since the variables which are associated with it have already appeared in other factors that have a greater influence. This study can also specify the impact of a single variable on improving the efficiency of a stock market area. The communalities column in Table 8 is derived from each variable by taking the sum of the squared factor loading for each of the factors associated with the variable. All variables which are loading Factor 1 have about a 65% variability on improving stock market efficiency. However, the average percentage of variability of the variables in Factor 2 is about 70%. Also, other variables have quite a reasonable influence, which is about a 60% variability.

9. CONCLUSION AND RECOMMENDATION

This study confirms previous findings in some respects and contributes additional evidence which suggests that the efficiency of financial markets is affected by social knowledge. While social knowledge was evaluated by considering some of the main factors that affect the efficiency of the stock market (religion, culture, economic awareness, public experience and income), the research established that the biographical scales of monthly income and years of experience are correlated with overall religion and culture and economic awareness, but there is no

correlation with the number of participants. Moreover, this is the reverse for biographical scales of gender, which does not have any correlation with religion and culture, economic awareness or the number of participants, and does not have any role in altering the efficiency of the stock market. Another finding from the research is the relationship of the numbers of participants in terms of listed companies and investors in the market. The research shows that the efficiency of the market cannot be affected by the number of participants, but this result could be biased, so further research is suggested. Recent arguments have suggested that customers' knowledge and understanding have an important impact on investment activity in financial markets. Notably, social knowledge can be increased through financial literacy and education. This means that if there is a high level of financial literacy in the population, there will be a high level of social knowledge. Therefore, financial literacy is a crucial issue (Mikl-Horke, 2010), as it can be difficult for investors to judge the financial market in order to decide how much of their cash to invest. Financial literature, social learning and advertisements are all aspects that affect social knowledge about trading on the stock market (Li et al., 2020). As Bradosti & Singh (2015) and Huang, Yuan, Lin, & Chi (2020) have pointed out, social interactions can have an impact on increasing awareness among the public. It has been suggested that social knowledge tends to increase through a variety of sources, such as newspapers, social media, radio stations, television stations and public conferences (Kazarwa, 2015). This is because the market becomes more competitive when there are a greater number of participants (Baker, 1984).

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