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The Effect of Investment Risks on the Efficiency of Stock Pricing - Analytical Research

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Abstract

The research aims to know the effect of investment risks measured by the beta coefficient on the efficiency of stock pricing measured by the pricing error. The research was applied in the banks listed in the Iraq market for the period (2017-2020). That affects the value of the shares of the companies listed in it and the risks associated with it, as the risks are a dynamic process that changes over time depending on the variables that affect the general development of the economy, so these fluctuations should be taken into account to achieve maximizing returns and reducing risks and what is reflected in stock prices in the Iraqi markets Securities, through which the following question was asked: How does investment risk affect the efficiency of stock pricing in the Iraq Stock Exchange? In light of this, the importance of the research and its objectives were determined, and the research methodology relies on the analytical method as it is more appropriate to the nature and scope of the research, in order to reach the results that the research aims at.

Keywords: investment risk, equity pricing efficiency, investment risk measures.

1. Introduction

With the increasing globalization in the world, stock markets are affected by many factors such as economic or political events, and social, as well as the available information about stock prices in the financial market, so pricing efficiency is an important concept through the degree to which stock prices reflect all available information, in Timely and accurate, both in terms of understanding the work of capital markets or in terms of their performance and contribution to the development of the economy, and during the past decades, the efficient

market hypothesis (EMH) represented the heart of the discussion in the financial literature because of its important implications, and (Fama 1970) defined the efficient financial market If the prices of securities fully reflect all the available information, and in the light of efficient financial markets, then the prices will represent the real values of the securities, and thus attention is not given to the form of the structural relationship between risk and expected return, but rather to the accuracy that the securities enjoy in the market with regard to their structure. New information about a particular company is known, so efficient markets count how quickly stock prices adjust to reflect the new information? If prices respond to all relevant new information in a rapid manner, we can say that the market is relatively efficient. Alternatively, the information is reflected relatively slowly in all securities in the market, as investors take time to analyze the information and respond, perhaps overreacting. Accordingly, the values may deviate from the real values based on a careful analysis of all available relevant information, and such a market can be described as inefficient in an appropriate way, and thus the prices of securities cannot be predicted, so companies should pay attention to their information and the most important information, They are the risks that companies may be exposed to, these risks include systemic risks and non-systemic risks, the most common of which are liquidity risks, credit risks, market risks, political risks, legal risks, reputation risks and risks, and market risks refer to loss due to changes in interest rates Or exchange rates or property rights, where these risks lead to a decrease in the prices of securities, because they are considered information available in the market for each company, and therefore the increase in risks is considered negative information that affects the pricing of shares and thus reduces efficiency, so that these risks must be taken into consideration to achieve efficient share pricing. .

2. Literature review

In light of the rapid and complex environmental developments, the environment is characterized by a high state of uncertainty and complexity (Alabadi & Alsomaidaee, 2020, 4079), and an abundance of rapid and sudden changes that have not been calculated, so the work of most companies is characterized by fluctuations and deterioration sometimes to keep pace with this complexity and this change (Salman et al , 2019:452) Therefore, risks are considered important because of their impact on information in the market, as companies are affected by risks in the market, whether they are market risks or debt risks, where the probability of bankruptcy increases with the increase in financial leverage, as they reached a positive and highly important relationship between the change in financial leverage and risk (Alnassar & Bin Chin, 2015:568), or political risks due to the country’s situation and other risks

1. Stock pricing efficiency

Pricing efficiency was developed on the basis of the “market efficiency hypothesis” by Fama (1970), which measures the degree to which price reflects information in the capital market. This price reflects not only the total amount of information received, but also the sensitivity of the information. It is generally believed that The more company-wide information a stock price will include (specific information or proprietary information), the more sensitive the price volatility will be to information changes, and the more efficient the stock pricing will be. Diamond and Verrecchia (1987) argue that the faster price adjusts to private information; Asset pricing was more efficient. (He & Fang, 2019: 5) Because prices always accurately reflect information, they are good signals of value and encourage better capital allocation. If the market is efficient, the information is fully and immediately reflected in prices, i.e. Pricing efficiency depends critically on information (Ackert & Deaves, 2010:29), and that an efficient market means a market that is well-informed and works correctly, and Jones (2009) describes it as reflecting the prices of all securities quickly and completely all available information about the assets, The concept assumes that investors will absorb all price-related information in making buying and selling decisions. The efficiency of the capital market can be understood at three levels: the internal (operational) level, the external (pricing) level, and the allocation level. Internal efficiency means that investors can quickly and accurately obtain Reliable transaction services at the cheapest possible rate, given the costs associated with providing the services. External efficiency means that prices fully reflect at all times all available information relevant to the valuation of securities. At the allocation level, the concern is whether the market efficiently allocates society's scarce resources where they can be most productive. The most important concept of efficiency is pricing. The efficiency of the capital market depends on how quickly new information is reflected in stock prices and information is treated as fundamental to setting stock prices, At the allocation level, the concern is whether the market efficiently allocates society's scarce resources where they can be most productive. The most important concept of efficiency is pricing. The efficiency of the capital market depends on how quickly new information is reflected in stock prices and information is treated as fundamental to Determination of stock prices, and therefore it is the central issue of the concept of an efficient market and that the financial market will not price securities fairly unless this company provides all relevant financial information, and the market uses this information to assess the true ability of the company to create value, and the information can be classified as historical Or current or expected, but only current and historical information is certain in its impact on the price (Nyamosi, 2015:173), pricing efficiency is defined as the degree to which stock prices reflect all available information, in a timely and accurate manner (Saffi, 2008:2), It

is also known as the rapid arrival of new information to dealers in the market without a large time interval and without incurring high costs, as stock prices reflect all available information, and all investors have the opportunity to obtain that information and at the same level of returns, but only a few investors can achieve Unusual returns as it depends on how the information is analyzed (Fabozzi, et al, 2010: 289). Pricing efficiency is an important indicator for measuring the quality of the capital market. It is considered vital in the efficient allocation of various financial assets and plays a positive indicative role in the healthy development of the real economy. In a high-quality stock market, information can be fast, accurate, and fully integrated into each share price. And when the stock is affected by positive or negative news, due to the political conditions in Iraq (Raheemah et al, 2020:298), its price can be adjusted quickly, and the stock price mechanism is vital in the efficient allocation of resources, and thus the distribution of limited funds quickly among the stocks (Zhao et al, 2021: 1).

2. investment risks

One of the effects of risks is that they come in different sizes and therefore need to be evaluated according to the size and potential consequences. History is never a guarantee of the future and favorable or unfavorable events in history may not occur again. Therefore, it is necessary to understand the risks and adjust the risk level to suit the risk preference. Therefore, The investor can partially adjust the level of risk by choosing the investment that best suits the level of risk (Kerola, 2022:19), and there are many risks associated with the stock market. There are some risks that investors can reduce (Cited, 2018:10-25), So, investing means taking risks because investments are a risky business, and there is always a possibility that the investors may not get the return as expected or they may lose all the money on that investment. Investors should focus on the risks to achieve the investment goal (Thapa, 2018:19), There are different types of risks associated with investments, such as market risk, liquidity risk, concentration risk, currency risk, and credit risk.

A: Types of investment risks

Systemic risk is a risk that is not amenable to diversification and that even with excellent diversification of the portfolio by the investor, systemic risk cannot be eliminated and appears constantly due to its impact on the industry, the country or the world as a whole (Watson & head, 2016:247, (Mandelker & Rhee, 1984 believes)) that systemic risk is a multiplier function of the degree of operational leverage, the degree of financial leverage, and the degree of economic leverage, and research has shown the joining of the effect of the level of financial and operational leverage on systemic risks and their relationship to operational and financial risks, systemic risks were analyzed in parts, such as business, operational and financial risks, The appreciation of

systemic risk is essential for investors, and it cannot be reduced by portfolio diversification such as company-specific risk (Shabnamjit, 2020:14) Berk & Demarzo, 2017:337) Unsystematic risk, (Mihai & Cristina, 2015) define unsystematic risk It is that part of the whole risk, which is unique to a company, frequently referred to as residual or specific risk, and relates to certain economic aspects (Mehrara, 2014:30), which affect individual and corporate industries, securities and projects, such as the quality of management or Equipment failure. Unsystematic risk is a risk associated with factors related to the company or industry such as; Management, capacity, consumer preferences, labor strikes, etc. These factors are largely independent of the factors affecting the stock market (Karimnia & Malgharni, 2014). Unsystematic risks are also company- or industry-specific risks, which can To arise from strikes or natural disasters that affect certain industries (Alzboon & Muhmad, 2021:3), irregular risks are represented by many factors that can affect the company's performance and lead to a decrease in the share price, as these financial risks are represented in liquidity and solvency , fraud risks, and many others (Dallocchio & Vernimmen, 2011:315)) (4: Akrani, 2012), and the total systemic and informal risks can be calculated according to the following formula:

$$\sigma_{i=}^2 \beta_i^2 \sigma_m^2 + \sigma_{ei}^2$$

Where:

σ_i^2: total risk.

$\beta_i^2 \sigma_m^2$: systemic risks.

σ_{ei}^2 :unsystemic risks.

B: investment risk metrics

1. Standard deviation

Standard deviation is one of the most powerful tools for determining the degree of risk and also for measuring the distribution of returns (Pike, et al. 2009, 164) in finance, and that "the greater the probability distribution of expected future returns, the lower the risk of a particular investment" (Brigham et al. 2007:250).). The standard deviation equation can be expressed through (Doan, 2017:8), (Bodie et al, 2014:133):

$$\sigma = \sqrt{\frac{\sum (R - \bar{R})^2}{n}}$$

2.mean absolute deviation

Konno and Yamazaki proposed the mean absolute deviation (MAD) model to define the absolute deviation of the rate of return as a measure of risk rather than variance (Almaadeed et al, 2022:775). The

mean absolute deviation from the median (MAD median) provides a direct measure of a random variable around Its average has many applications in different fields, and it is in fact a measure of absolute deviation that is more efficient than the standard deviation, as small errors occur in observation and measurement (Habib, 2012:517), and it uses the method of evaluating prediction methods, the sum of simple errors, and measures the average absolute deviation (MAD).) prediction accuracy by calculating the claimed average error (the absolute value of each error). MAD is useful when measuring prediction errors in the same unit as the original series (Khair et al, 2017:3), and the MAD value can be calculated using the following formula (Lam et al. al, 2021:4):

$$\mathrm{MAD} = \frac{\sum | Y1 - Y2 \quad |}{\bar{\mathrm{N}}}$$

3. Average contrast

Markowitz (1952) proposed the mean variance (MV) model (Rachev, 2008:5) and was awarded the Nobel Prize in Economics in 1990. The MV model used the mean and variance, which are computed from historical asset prices, to determine expected return and portfolio risk. The mean value model assumes that an investor wants to maximize expected return for a given level of risk or minimize risk for a given return (Chaweewanchon & Chaysiri, 2022:5).Risk-return optimization can be highly sensitive to changes in inputs (Jayeola et al, 2020:2), especially when the risk-return estimates are not well aligned or when the problem formulation uses multiple, interacting constraints. As a result, many practitioners consider the outcome of risk-return optimization opaque and unstable. One of the main criticisms of the MV approach focuses on Its dependence on the estimated parameters; specifically, expected returns and variances, and its sensitivity to errors in these estimates (Kolm et al, 2014:5), Michaud (1989) notes that MV optimization is one of the outstanding mysteries in modern finance and that it has not received widespread acceptance from By the investment community, especially as a practical tool for active equity investment management. He describes this conundrum as a “Markowitz optimization conundrum” and calls the MV optimizers “multiples of estimation error (BAI et al, 2016: 2), and the equation can be expressed through the following (Fekri & Barazandeh, 2019: 7), (Sikalo et al, 2020 :2):

Minimize σ 2 = ∑ N i=0 ∑ N j=0 wi wj Cij (1)

subject to ∑ N i=1 wiEi = γ (2)

∑ N i=1 wi = 1 (3)

wi ≥ 0 (4)

4. Coefficient of difference

Another useful tool for tracking the degree of risk is the coefficient of variation. Investors can use this tool to measure the dispersion of variance for stocks with different expected returns (Pike et al, 2009:167l). The coefficient of variation (CV) is a measure of relative variability, expressing the dispersion of data values around a mean where the mean is X, and the standard deviation is σ. Dias, 2021:103) (Santos&, the coefficient of variation "CV" is one such statistical parameter, a classic measure of the diversification of a characteristic distribution, which, unlike standard deviation (determining the non-proportional diversification of a characteristic), is a relative measure, dependent on the value of the mean Arithmetic (Marek, 2013:2), and the value of (CV) can be calculated using the following formula (Campeciño, 2021:8), (Tran et al, 2019:4), the coefficient of difference is calculated according to the following formula (Al-Mashhadani, 2013:84):

$$C.V = \frac{\sigma}{\overline{R}}$$

5. β (Systemic risk is not diversifiable)

The concept of Beta is an important component of CAPM theory that was used for research by Cia (2013) as well. According to Luecke (2002), beta is specifically a representation of systemic risk, which can be defined as market risk, which is also listed as " Non-diversifiable risks" and it can be defined as the risks that affect the entire market, not just a specific company, and that beta shows its response to the variation in the returns of a particular security in relation to changes in the stock market. The value of beta is set to be one as a standard for measuring systematic risk. implied by (Singh, 2018:16), the beta coefficient (ß) measures the volatility of the expected outcome of specific investments (whether in real assets or in financial assets) in relation to the efficiency of the overall capital market. Therefore, it is a measure of systemic risk (Karačić et al, 2014: 523). We distinguish between two forms of beta coefficient: the first is post-beta determined by past and historical data, and the second is an estimate of the beta coefficient for the future, that is, the expected beta. The expected beta version is of vital importance for investment decisions Because on the basis of its base we can find if the security is underestimated or overestimated. Of course, an estimate is made on the basis of historical data, and therefore the historical beta estimate cannot be underestimated (Kliestik & Cisko, 2014:36) (Kliestik, 2016:206 & Spuchlakova), and beta can be expressed through the following equation ((Gocejna, 2021:371). (Bodnar et al, 2019: 2):

$$\beta = \frac{\mathrm{Cov}_{i,m}}{\sigma_m^2}$$

6. Value at risk (var)

VaR is a statistical measure that assumes that if market conditions are normal over a certain period of time, the maximum losses for the portfolio (or financial instrument) will not be higher than the VaR estimate. It is an estimate, not a measure. This means that in contrast to financial indices/metrics, Like return and volatility, VaR depends on several assumptions that may be adopted by many systematic logical approaches to estimate the most accurate VaR (Vasileiou, 2017:952), and () can be measured through the following equation (Abdul Hakim, 2018: 155):

$$\text{Var}=v*a*\sigma$$

v: portfolio value

A: confidence level

σ: standard deviation

There are different methodologies for calculating VaR, namely:

1. Historical simulation

Some researchers such as (Jawwad and Palgrave, 2014) show that historical simulation (HS) is the most common method. VaR is estimated simply by reading empirical fractions of immediately past returns. Winer (1999) asserts that historical simulation belongs to the non-parametric method of calculating VaR, where what is common to all nonparametric methods is the use of an empirical distribution. (Ameni, 2022:4)

2. Covariance method

This method is also known as the parametric method, and it contains two basic variables that the parametric method uses in its calculation, which are the value of the rate of return, and the standard deviation of the same data, and the basic condition for the parametric methods is that the returns of securities are distributed normally (Irsan & Sirait, 2020: 56)

3. Simulation method

Monte Carlo simulation begins with identifying the financial assets of interest, and their underlying market factors Once this is done, a function can be created that expresses the market value of the asset Monte Carlo simulation is flexible and can generate a large number of reliable data that can be used in value-at-risk calculations (Penza and Bansal, 2001) has the characteristics of being general and accurate. The simulation captures the convexity that is often used for nonlinear tools such as options. The method has been criticized for requiring computer use and the need for computerized calculations takes a long time (Alshamali et al, 2021:

4. Material and Methods

First: Stock pricing efficiency metrics

A. average returns (Najm, 2012: 182)

$$\overline{R} = \frac{\sum_{i=1}^{n} Ri}{n}$$

whereas:

R̄: average returns

(Ri): The company's stock dividend.

N: the number of periods

B- To calculate returns for individual assets, the following mathematical formula has been adopted (Hashem & Ismail, 2013:67) (Muhammad & Adnan, 2014:185)

$$R_i = \frac{P_t - P_{t-1}}{P_{t-1}}$$

whereas:

(Ri): The company's earnings per share.

Pt: the share price for the current period.

Pt-1: the share price for the previous period

c. The measure (pricing error) was calculated according to the following formula

The error of higher pricing is lower efficiency and lower sensitivity of the trading price that absorbs new information (Nie, 2019:9). The pricing error can be expressed through the following equation): (,2014:4 Singal (Qin&:

$$p_t = \mathbf{m_t} + \mathbf{s_t}$$

Whereas:

p_t: pricing error

m_t: is defined as the expected stock value given all available public information and assumes that it follows a random walk

second: investment risks metrics

A: the beta coefficient for the shares of the research sample companies. The beta coefficient is calculated through the following equation (Bodnar et al, 2019:2):

$$\boldsymbol{\beta} = \boldsymbol{cov}\,(\boldsymbol{Ri}.\boldsymbol{Rm})/\boldsymbol{\sigma}\mathbf{2}(\boldsymbol{Rm})$$

B: The standard deviation of the stocks of the study sample companies

The standard deviation is the "positive square root of the arithmetic mean of the squares of the deviations of the different elements from the arithmetic mean. The higher the standard deviation or variance, the greater the dispersion.

$$\sigma i == \sqrt{\frac{\sum (Ri - \overline{R})^2}{N}}$$

5. Discuss the results

First: Discussing the results of the efficiency of stock pricing

A: Analysis and discussion of the monthly stock returns of the research sample companies and for the period (2017-2020)

Based on the monthly closing prices of the shares of the research sample companies in the Iraq Stock Exchange, the monthly return was calculated, and as shown in tables (1) (2), achieved (3) companies from the banking sector out of (5) banking companies, while the returns were positive in (3) Banks from the banking sector among (5) banks within the research sample positive returns as follows (Bank of Baghdad BBOB, National Bank of Iraq BNOI, Bank of Kurdistan (BKUL). The Commercial Bank of Iraq DCOI and Ashur Bank BASH did not achieve any positive returns. At the level of the banking sector, it achieved (Bank BASH) achieved the highest monthly rate of return if it reached (3.9%) and the volatility was (0.249), while (Bank of Kurdistan BKUL) achieved the lowest monthly rate of return if it reached (0.11%) and the volatility was (0.104).

Table (1) the monthly return of the research sample companies for the period (2017-2020)

BASH	BKUL	BNOI	BBOB	DCOI	الشركات / الاشهر
0	0.382352941	0.4390244	0.1868132	0.2916667	Jan-17
0.095238095	-0.021276596	-0.0508475	-0.0092593	0.016129	Feb-17
-0.086956522	-0.086956522	-0.0357143	-0.1121495	-0.1269841	Mar-17
-0.063492063	-0.119047619	0.0185185	-0.0526316	-0.0363636	Apr-17
-0.025423729	-0.108108108	-0.0181818	-0.1777778	-0.1698113	May-17
-0.043478261	0.03030303	0.037037	-0.0945946	-0.0454545	Jun-17
0.136363636	-0.117647059	-0.1071429	-0.0447761	0.0238095	Jul-17
0.12	-0.066666667	0.02	-0.109375	-0.0465116	Aug-17
-0.035714286	-0.035714286	-0.0196078	-0.0175439	-0.0243902	Sep-17
0.22962963	0.111111111	0	0.0178571	0	Oct-17
-0.204819277	0.033333333	-0.06	0.0701754	0.2	Nov-17
-0.03030303	-0.032258065	0	0.4754098	0.0208333	Des-17
0.015625	0.066666667	0.0212766	0.0163934	0	Jan-18
0	0.03125-	0.2083333	0.1290323	0.0212766	Feb-18
0	0.129032258-	0	0.1142857-	0.0833333-	Mar-18
0	0	0.0862069	0.1129032-	0	Apr-18
0.007692308-	0.037037037-	0.1587302-	0.2181818-	0.0227273-	May-18
0.069767442-	0	0.1886792-	0.0232558-	0.0232558	Jun-18
0.058333333	0.153846154	0.0465116-	0.0238095	0.0909091	Jul-18
0.015748031-	0.133333333-	0.2195122-	0.0465116-	0.0833333-	Aug-18
0	0.038461538-	0.1875-	0	0	Sep-18
	0.08-	0.1923077-	0.2439024-	0.0681818-	Oct-18
0.6	0.043478261-	0.7619048	0.0645161-	0.0487805	Nov-18
0.45-	0.045454545	0.0810811-	0	0.0930233	Des-18

Table (2) the monthly return of the research sample companies for the period (2017-2020)

BASH	BKUL	BNOI	BBOB	DCOI	الشركات / الاشهر
0	-0.086956522	0.0588235	-0.0344828	-0.1914894	Jan-19
-0.045454545	0	-0.1111111	-0.1071429	0.0789474	Feb-19
-0.00952381	-0.095238095	-0.03125	-0.04	-0.0731707	Mar-19
0.057692308	0.052631579	-0.0645161	0	0.1578947	Apr-19
0	0	0.3103448	0.625	0.0454545	May-19
0.363636364	0.05	0	-0.1282051	-0.0434783	Jun-19
-0.266666667	0.095238095	0	-0.1764706	0.0227273	Jul-19
-0.045454545	0	0.2105263	0.0357143	0.0444444	Aug-19
0.038095238	-0.043478261	0.3913043	0.0344828	0.0212766	Sep-19
0	0.045454545	-0.1875	0.0333333	-0.0208333	Oct-19
0	0.043478261	0.1538462	-0.0322581	-0.0212766	Nov-19
0	0	0.0166667	0	0	Des-19
0	0	0.0655738-	0.0666667-	0	Jan-20
0.027522936-	0	0.1578947-	0.0714286	0	Feb-20
0	0.041666667-	0.0833333	0	0.0217391-	Mar-20
0.047169811-	0.086956522-	1-	0.1-	0.0888889-	Apr-20
1-	0.047619048		0.1481481	0.0487805	May-20
	0.045454545-	0	0.1290323	0	Jun-20
0	0.285714286	0.36	0.2857143	0.0465116	Jul-20
0	0.222222222	0.0147059	0	0.0222222	Aug-20
0	0.151515152-	0.0289855-	0.1777778-	0	Sep-20
0	0.107142857-	0.0298507-	0.0540541	0.0217391-	Oct-20
1-	0.04-	0.0307692	0.025641	0.0222222-	Nov-20
	0.166666667	0.3731343	0.025	0	Des-20
0.039123859-	0.001112844	0.0117714	0.0017161	0.0022086	AVE
0.249818977	0.104685009	0.2376685	0.1516039	0.0797828	Q
6.385335774-	94.06978941	20.190258	88.343804	36.123206	CV

B: Analysis and discussion of the pricing error for the study sample companies and for the period (2017-2020)

The higher pricing error is the lower the efficiency and lower sensitivity of the trading price that absorbs the new information, and the pricing error can be measured through the following equation (Nie,2019:9)

$$p_t = m_t + s_t \quad \ldots\ldots\ldots\ldots$$

whereas:

pt: pricing error

mt: is defined as the expected stock value given all available public information and assumes that it follows a random walk

st: measures the deviation between the transaction price and the efficient price

t: normal time

The table (3), (4) shows the pricing error of the research sample companies and for the period (2017-2020), as we find that (Ashur Bank BASH) has obtained the highest pricing error as it reached (0.150) and Bank of Baghdad BBOB ranked second as the pricing error reached (0.104). The lowest pricing error for (DCOI) was (0.065), followed by (Kurdistan BKUL) which was (0.087).

Table (3) pricing error for the research sample companies for the period (2017-2020)

BKUL	BASH	BNOI	BBOB	DCOI	الشركات / الاشهر
0.02	0.382352941	0.43902439	0.186813187	0.2916667	Jan-17
0.095238095	0.015276596	0.090847458	0.029259259	0.016129	Feb-17
0.106956522	0.080956522	0.075714286	0.132149533	0.1469841	Mar-17
0.083492063	0.113047619	0.021481481	0.072631579	0.0563636	Apr-17
0.045423729	0.102108108	0.058181818	0.197777778	0.1898113	May-17
0.063478261	0.03030303	0.037037037	0.114594595	0.0654545	Jun-17
0.136363636	0.111647059	0.147142857	0.064776119	0.0238095	Jul-17
0.12	0.060666667	0.02	0.129375	0.0665116	Aug-17
0.055714286	0.029714286	0.059607843	0.03754386	0.0443902	Sep-17
0.22962963	0.111111111	0.04	0.017857143	0.02	Oct-17
0.224819277	0.033333333	0.1	0.070175439	0.2	Nov-17
0.05030303	0.026258065	0.04	0.475409836	0.0208333	Des-17
0.015621388	0.066666667	0.021276596	0.016393443	0.004	Jan-18
0.02	0.00875-	0.208333333	0.129032258	0.0212766	Feb-18
0.02	0.089032258	0.0004	0.014285714	0.0873333	Mar-18
0.02	0	0.086206897	0.012903226	0.004	Apr-18
0.027692308	0.002962963-	0.159130159	0.118181818	0.0267273	May-18
0.089767442	0	0.189079245	0.023255814-	0.0232558	Jun-18
0.058333333	0.153846154	0.046911628	0.023809524	0.0909091	Jul-18
0.035748031	0.093333333	0.219912195	0.046511628-	0.0873333	Aug-18
0.02	0.001538462-	0.1879	0	0.004	Sep-18
0.02	0.04	0.192707692	0.143902439	0.0721818	Oct-18
0.6	0.003478261	0.761904762	0.035483871-	0.0487805	Nov-18
0.47	0.045454545	0.081481081	0	0.0930233	Des-18

Table (4) pricing error for the research sample companies for the period (2017-2020)

BKUL	BASH	BNOI	BBOB	DCOI	التصريحات / الاشهر
0.065454545	0.02	0.231111111	0.147142857	0.0789474	Jan-19
0.02952381	0.115238095	0.15125	0.08	0.0771707	Feb-19
0.057692308	0.052631579	0.184516129	0.04	0.1578947	Mar-19
0.02	0.02	0.310344828	0.625	0.0454545	Apr-19
0.363636364	0.05	0.12	0.168205128	0.0474783	May-19
0.286666667	0.095238095	0.12	0.216470588	0.0227273	Jun-19
0.065454545	0.02	0.210526316	0.035714286	0.0444444	Jul-19
0.038095238	0.063478261	0.391304348	0.034482759	0.0212766	Aug-19
0.02	0.045454545	0.3075	0.033333333	0.0248333	Sep-19
0.02	0.043478261	0.153846154	0.072258065	0.0252766	Oct-19
0.02	0.02	0.103333333	0.04	0.004	Nov-19
0.02	0.02	0.062261217	0.04	0.004	Des-19
0	0.04	0.01442623-	0.126666667	0	Jan-20
0.027522936-	0.04	0.077894737	0.071428571	0	Feb-20
0	0.081666667	0.083333333	0.06	0.0157391	Mar-20
0.047169811-	0.126956522	0.92	0.16	0.0828889	Apr-20
0.58	0.047619048	0	0.148148148	0.0487805	May-20
0	0.085454545	0	0.129032258	0	Jun-20
0	0.285714286	0.36	0.285714286	0.0465116	Jul-20
0	0.222222222	0.014705882	0.06	0.0222222	Aug-20
0	0.191515152	0.028985507-	0.237777778	0	Sep-20
0	0.147142857	0.029850746-	0.054054054	0.0157391	Oct-20
0.58	0.08	0.030769231	0.034358974	0.0162222	Nov-20
0	0.166666667	0.373134328	0.035	0	Des-20
0.087014467	0.150848048	0.10417043	0.091207034	0.0650601	AVE

Second: Discussing the results of the Investment risk

A: beta coefficient

Table (5) shows the results of the beta coefficient for the shares of the research sample companies, as we find that the highest beta coefficient was achieved by (the National Bank of Iraq (BNOI) as it reached (1.056), which indicates the most volatile return per share with the return of the market compared to the rest of the shares of the research sample companies, followed by Kurdistan Bank BKUL, as it reached a negligible beta of (1.434), while the lowest beta coefficient was for the Iraqi Commercial Bank (DCOL), as it amounted to (0.623), followed by the Bank (BASH), as the beta coefficient reached (0.745), which indicates that the return on the share is less volatile than the market return. This can be explained in Table (5).

Table (5) the beta of the research sample companies for the period (2017-2020)

Beta معامل					
AV	2020	2019	2018	2017	الشـركات
0.623945	0.3998	0.17688	0.0009	1.9182	DCOI
0.8030875	0.28116	1.67112	0.02957	1.2305	BBOB
1.5812925	2.5146	2.6357	0.13707	1.0378	BNOI
0.74585	1.299	0.3062	0.0198	1.3584	BASH
1.434535	2.8941	2.5994	0.11904	0.1256	BKUL

B: standard deviation

We note the results of the standard deviation that measure the risks of the stocks of the study sample companies through the table (6), the Bank (The National Bank of Iraq (BNOI) recorded the highest standard deviation as it reached (0.221), followed by (Ashur Bank BASH), if the standard deviation reached (0.208), and this means The two companies are of high risk, and the lowest standard deviation was achieved by the (Commercial Bank of Iraq (DCOI) as it reached (0.072), followed by (Bank of Kurdistan BKUI) as it reached (0.097).

Table (6) the standard deviation of the research sample companies for the period (2017-2020)

الانحراف المعياري (σ)					
AV	2020	2019	2018	2017	الشركات
0.07285	0.0344	0.0602	0.0572	0.1396	DCOI
0.144475	0.1164	0.1938	0.1007	0.167	BBOB
0.22185	0.3283	0.1651	0.2616	0.1324	BNOI
0.09711	0.1301	0.0478	0.0777	0.13284	BKUL
0.20885	0.372	0.1328	0.2179	0.1127	BASH

6. Conclusions

1. The results showed that the increase in risk and the possibility of financial distress and bankruptcy is reflected in the information in the market that leads to a decrease in the efficiency of stock pricing in the research sample companies.

2. The results showed that the high degree of investment risk in the Iraqi Stock Exchange is a natural result and reflection of the political and economic conditions in Iraq during the time period under study. the future .

3. The results showed that the impact of investment risks on the efficiency of stock pricing is positive at low to medium risk levels and negative at high risk levels.

4. Equity financing costs more, but it is less risky because companies do not have a legal obligation to pay dividends to shareholders if their performance is poor, and therefore the information available about the company is private and investors cannot view it, and therefore there is

no impact on the efficiency of share pricing for the companies concerned.

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