Evaluating the performance of the optimal investment portfolio using some financial methods

Dhuha Ali Hamzah Al-Rubaie & Prof. Dr. Haider Youns AL- Moussawi

[1]Applied research on the Bank listed in the Iraq Stock Exchange

Post Graduate Institute for Accounting and Financial Studies

Ministry of Higher Education and Scientific Research,University of Baghdad

[2]Republic of Iraq

University of Baghdad, Republic of Iraq

ABSTRACT

The optimal investment portfolio is one of the most important issues in financial management because of size and variety of investment options as well as the large and varied risks in the financial and banking field. Due to the importance of optimal investment portfolios for investors, there is a great attention on the risk that may affect them and how to build the optimal investment portfolio which is the main concern of many researchers and in any sector that invests in the market. This research attempts to answer the questions that constitute the whole problem of research.

1- What are the shares that constitute the optimal investment portfolio in the banking sector belonging to the Iraqi market for securities?
2- Are portfolio valuation methods identical to each portfolio?

The objective of this study is to use the one-indicator model to build the optimal investment portfolio and to the risk-adjusted return method to evaluate the optimal investment portfolio performance according to the Sharpe, Turner and Jensen indices.
This research used the data of the monthly closing price of shares of banks listed in the Iraqi market for securities research sample during the period of research from 2007-2016.

The research has reached to a lot of conclusions, the most important of which is that building the ideal investment portfolio according to the index model leads to efficient performance of investors in building their investment decisions by identifying the most desirable shares and forming their investment portfolio which is characterized by return and risk through the index of Turner compared to the cut rate.
The results of the analysis showed that the methods used to evaluate the performance of the optimal investment portfolio according to the indicators (Sharpe, Turner and Jensen) are not identical, because each indicator focuses on a particular aspect of the risk.
According to these conclusions , there are a lot of recommendations and the most important of which is the necessity that investors should adopt the one-indicator approach to construct the optimal

investment portfolio. This is due to the high efficiency of this model in reducing the type and the quantity of data and its ability to produce good stocks that achieve the best investments.

Introduction

In view of the great and rapid developments witnessed by the world today and in all fields in the fields of finance, banking, technology, investment and others, In addition to the great openness of the financial markets and the high level of competition between business organizations in various sectors, Including the banking sector. Studies on the financial and banking sector have begun to take a large part of the interest of writers, researchers and investors in this field. The theme of the investment portfolio is one of the most important topics in the field of financial management.

The process of investment portfolio construction needs to be evaluated on an ongoing basis, due to the dynamic investment movement on the one hand and the rapid changes in the financial and banking fields on the other hand. Therefore, this study aimed to build and evaluate the performance of the optimal investment portfolio using some financial methods (Sharp, Trainor, Jensen), which is one of the main benefits to identify the feasibility of the use of financial resources for individuals and companies alike, Because the objective of any investor is to form an ideal portfolio that reduces the risk and increase the return of the investor, as the investment is based on the elements of return and risk. This led investors to study the portfolio and carry out the necessary analysis of the return on risk using some financial methods and evaluate the performance of the ideal portfolio by comparing the results achieved by the

market portfolio return rate for the ideal portfolio selection.

الفصل الاول

The first Section

This course deals with determining the methodology of research by reviewing the most important paragraphs (research problem, importance of research, research objectives, research hypothesis, limits of spatial research (community and research sample) and temporal (duration and search data), procedures and methods of research as follows:

1.1.1 Research problem

The financial sector is fertile ground for risk as a result of the fast and rapid development in the financial, banking and investment fields in general, as well as the great openness of the financial markets and other economic sectors in light of the concepts of globalization in all its forms and fields. Therefore, following up and updating the ways and methods of assessment and the measurement of these risks, determining the priority returns in diversified investment is a priority of specialists and researchers.

And here arises a fundamental problem which is the large and multiple investment options for the investors that making them financially uncertain and hard to make an investment decision in any of the sectors can invest financially in the stock market, and the Research problem can be summarized by the following questions:

1. What are the shares that constitute the optimal investment portfolio in the banking sector that belong to the Iraqi market for securities?

2. Are the valuation methods for portfolio performance is identical for all portfolio?

3- Which banks are the most stable in entering the optimal investment portfolio?

2.1.1 Importance of Research

The financial world is characterized by great distinction for the financial sector. Therefore, the topics of the financial market , financial investment and the decision to be taken is important in the academic and field research ,as a result of the importance of investment portfolios to the investors ,the interest in the risk that can affect them and how to build investment portfolio weighted by the risk become the concern for many researchers so this research is interested in:

1 - Building the optimal investment portfolios for the banking sector in the Iraqi stock market and knowledge of the shares involved during the period of research.

2 - Know and prove that the valuation methods for the investment portfolio (Sharp scale, Trainor scale and Jensen scale) are similar in multiple portfolio evaluation.

3 - Know the most return to risk weighted bank and the sequence of banks in the Iraqi market for stock.

3.1.1 Research objectives

This research aims to achieve a number of goals on its head:

1 - Building the optimal investment portfolio for a number of banks in the Iraqi stock market and a statement of any shares listed in the market will enter into these portfolios.

2 - Evaluation of the investment portfolios of the banking sector in the Iraqi market for securities through a number of methods used in the assessment (Sharp index, the Trainor index, and the index Jensen).

3 - Arrangement of banks according to risk weighted return for each investment portfolio.

4.1.1 Hypotheses of the study

Depending on the research problem and its data, the research is based on a number of hypotheses agencies:

1 - The shares in the optimal investment portfolio are similar in the banking sector from one year to another.

2. The results of valuation techniques for optimal portfolio performance are similar.

5.1.1 Temporal and spatial limits :

A. **Time Limits**: Based on the research data, the following data have been provided.

1 - Values of the monthly closing prices of the Iraqi stock market index for all shares of the banks represent the research sample for the period from January 2006 until December 2016.

2 - Monthly interest rates on Iraqi treasury transfers for the period from January 2007 until December 2016.

B. Spatial boundaries:

The research community consists of all the shares of the Iraqi private banks. The sample of the research was selected based on the basic condition of the continuity of the banks listed in the market and circulation length of the inspection period and exclude banks written off and not within the period approved in the search.

6.1.1 Procedures and methods of study

We have relied on many of the financial and statistical methods that helped to accomplish this research, which were explained in the theoretical terms such as the equation of yield extraction , total risk calculation equation , calculation of beta , equation of variance and standard deviation calculation, calculation of the cutting rate , equation of Zi calculation , the calculation of optimal portfolio inputs weights , Sharp index and the Trainor index Jensen Index as well as relying on EXCEL to extract results.

2- Investment Portfolio

The term "investment portfolio" consists of two parts: the first is the term portfolio, and

the other is the term investment. The investment portfolio has been defined by several definitions :

	Definitions	Page	Year	Writer
1	It is a combination of securities such as stocks, bonds and other financial market instruments owned by the bank ,investor or other.	330 21	2003 2015	)Webster( )Poornima, Remesh(
2	Oxford is defined it as a "group of shares owned by a single person or institution.	324	2010	)Horn by(
3	An appropriate mix of investments held by institutions or individuals.	3	2010	(Bilaus)
4	Investment portfolio is "transactions and positions involving trading in shares or debt securities, and other assets."	3	2015	(Taw& Myanmar)

Optimal investment portfolio

The ideal portfolio term is not a concept at all but a relative one Therefore, it is difficult to define a general and unified model that defines its specifications from the point of view of all investors , As investors differ in the order of priorities , objectives , data and therefore the investor decides how to merge the investment tools that make up the portfolio.Therefore, many definitions of the optimal investment portfolio were presented by writers, authors and researchers in financial administration and markets. Hence, we include some concepts of optimal portfolio.

Table (2) optimal investment portfolio definitions

	Concept	Page	Year	Writer
1	Is an "efficient portfolio that has the highest benefit for a given investor."	200	2012	(Reilly & Brown)
2	"A portfolio is at an efficient limit to achieve the best combination of return and risk for a particular investor.	265	2013	)Francis(
3	Is a portfolio that, under market conditions and investor preferences, maximizes investor satisfaction.In accordance with the expected interest theory, the risk investor will never choose an inefficient portfolio, and there is always an ideal portfolio for each investor.	20	2015	(Bourdain)

Modern Portfolio Theory (MPT)
Also called "portfolio management theory" MPT, an advanced investment gateway developed by Professor Harry Markowitz in 1952. (Ahmadinia, 2011: 25-26) The Markowitz model is used to select securities based on risk and return analysis. Markowitz laid the foundation

for risk measurement and his contribution was known as "modern portfolio theory". Which provided tools for analysis and optimal portfolio selection. (Nalini, 2014: 73). According to the research by Harry Markowitz and William Sharp, this theory suggests maximizing returns through a variety of securities. This theory tells us that risk can be reduced by combining low risk securities with high-risk securities, and this theory is based on the concept of diversification in its formulation. (Ahmadinia, 2011: 25-26) .

Modern portfolio theory (MPT) is defined as: "An approach to decision making The investment portfolio seeks to increase return rates while minimizing risk, and the portfolio should include risk-free and risk-free securities that are mutually exclusive." (Friedman, 2000: 431)

Assumptions of Portfolio Theory:
Markowitz is credited with the development of modern portfolio theory and portfolio theory is based on several assumptions about investor behavior: (Brown & Reilly, 2010: 182) (Yang & Zhu, 2013: 2310)

1. Investors look at each investment alternative from the perspective of potential distribution of expected returns over a given period of time.
2. Investors aim to maximize the expected benefit for one term, and benefit curves show a diminishing marginal utility of wealth.
3. Investors value portfolio risk on the basis of volatility in expected returns.
4. The investment decision is based on two variables: the expected return and the risk. Therefore, the benefit curves are a function of the expected return and the variance or the expected standard deviation of the returns only.
5. Investors avoid risk. They choose the alternative that gives less risk if two alternatives have the same yield.

Evaluation of portfolio performance
Portfolio performance assessment primarily refers to how a particular investment portfolio has a certain performance relative to some comparison criteria (Sharp, Treynor and Gensen) (Shariat & Ketabi, 2016: 1207). The performance assessment shows how successful the management is in balancing high return and acceptable risk (Jorden & Miller ,2013:425) . The assessment can also indicate whether the performance of the portfolio is superior or low, Equality with the standard. Evaluating the performance of an investment portfolio is important. An investor who has invested money in an investment portfolio needs to know the portfolio's relative performance (Bodie , et. al., 2011: 445) . Studies on portfolio performance evaluation began in 1960 along with the development of the modern asset pricing theory after the portfolio was selected (Ahmadinia, 2011: 222). In addition, portfolio performance is assessed through the relationship between expected return and beta with The stock market line (SML), which shows us whether the performance is good or not. As each security can be described in a certain line in the stock market and it is different because of the difference in the value of their own beta and reflect different levels of market risk for these securities.
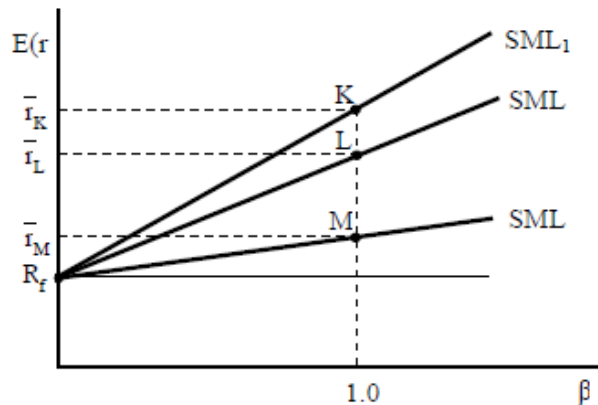
Figure (1) Securities Market Line (SML)

Source : Levišauskaite , Kristina , (2010) , "Investment Analysis and Portfolio Management" , Leonardo da Vinci programme project , Vytautas Magnus University Kaunas, Lithuania . p 58.

Performance Appraisal Methods

The methods of performance evaluation have evolved from simple to double-method. The simple method is based on measuring the return only. The scientific method depends on the measurement of return and risk together. There are several models used to measure risk-adjusted return on investment portfolio: Sharpe (1966), Treynor (1965) and Jensen (1968).

Sharpe's performance index:

Sharpe index was given by WF Sharpe in 1966, it measures risk premium of a portfolio, relative to the total amount for risk in the portfolio. Sharpe index summarizes the risk and return of a portfolio in a single measure that categorizes the performance of funds on the risk-adjusted basis. The larger the Sharpe Index, the portfolio over performance the market and vice versa (Acma ,2014 : 196) , (Kidd,2011:1) .

$S_{Rp} = [E(r_p)-(R_f)] / \sigma(rp)$

As:

S_{Rp} = refers to the value of the bonus index to the volatility ratio of the yield, which reflects the performance of the investment portfolio under evaluation.

$E(r_p)$ = Indicates average portfolio return.

R_f =Indicates a risk-free return on investment.

$\sigma(r_p)$ =refers to portfolio risk measured by the standard deviation of portfolio returns.

Treynor's performance index:

It was given by Jack Treynor in 1965, it is expressed as a ratio of returns to systematic risk i.e. beta. It adjusts return based on systematic risk; therefore it is relevant for performance measurement when evaluating portfolios separately or in combination with other portfolios (Marios , 2014 :31) ؛ (Jagric, et al., 2007:237) (Poornima, Saranya, 2016:86).

$$T_P = \frac{E(R_P) - R_F}{\beta_P}$$

As:

T_p = Treynor index value

$(E(R_P)$ = expected portfolio yield;

R_F = risk-free rate of return;

B_P = beta-Purse.

Jensen's performance index:

It is a regression of excess fund return with market return given by MC Jensen in 1968. It is also popularly known as Jensen's alpha based on Capital Asset Pricing Model (CAPM). It reflects the difference between the return actually earned on a portfolio and the return of the fund was expected to earn, given its beta as per the CAPM. (Reilly , Brown, 2012:968).

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$α= (R_P – R_F) – B(R_M–R_F)$

As:

A = alpha coefficient.

R_P = Return on Investment Portfolio.

R_F= risk-free return.

R_M = Market Portfolio Return (Market Index)

B = Beta Investment Portfolio.

—

Steps to identify shares in the portfolio :

A set of steps to identify the shares in the portfolio will be listed as follows:

The first step: Calculate the return and risk of the security on the basis of the single index model. According to equation .(Elton et.al,2014:128) (Bodie,et.al,2011:253)

$$\overline{R}_i = \alpha_i + \beta_i \overline{R}_m$$

$$\sigma_P^2 = \beta_P^2 \sigma_M^2 + \sigma^2(e_P)$$

The second step: Arrange the securities (shares) from top to bottom using the ratio of the additional return of the share to Beta (β) This is called the measure of Treinor, which measures the desired stocks and as the following equation: (Jordan & Miller, 2009: 415)

$$\text{Treynor ratio} = \frac{R_{.} - R_f}{\beta_{.}}$$

The third step: After listing the securities from the highest desired value to the lowest value, the cut rate is calculated. The cut rate is the rate at which the stock that will be included in the optimal portfolio is determined. and it is calculated according to the following formula :(Elton et.al, 2014: 180)

$$C_i = \frac{\sigma_m^2 \sum_{j=1}^{i} \frac{\left(\overline{R}_j - R_F\right)\beta_j}{\sigma_{ej}^2}}{1 + \sigma_m^2 \sum_{j=1}^{i} \left(\frac{\beta_j^2}{\sigma_{ej}^2}\right)}$$

As:
C_i = cutting rate.
$\sigma^2 m$ = Differential (variation)rate of the market portfolio return.
$\sigma^2 ei$ = Differentiation(variation) of the stock return.
R_i = the rate of the security.

The fourth step: After identifying the securities that will be placed in the portfolio, the weight is determined for each security. And according to the following formula (Chen: 2012, 14)

$$X_i = \frac{Z_i}{\sum_{included} Z_j}$$

Z_i value is calculated according to the following formula:

$$Z_i = \frac{\beta_i}{\sigma_{ei}^2}\left(\frac{\overline{R}_i - R_F}{\beta_i} - C^*\right)$$

Z_i :Represents the weight of the security in the portfolio,
X_i: represents the relative weight of the listed equity.

الفصل الثالث
The first topic
Analysis of the characteristics of individual stocks in the Iraqi Stock Exchange.
1.1.3: Initialization of investment portfolio inputs for 2007
1 - Analysis of the return and risk of the Iraqi stock market for the research sample. The first step in building an investment portfolio requires the creation of the necessary inputs to complete the portfolio construction process, through the Iraq Stock Exchange Index (ISX) for the period from

2007 to 2016,Market returns, mean, variance and standard deviation can be determined for all years that have been adopted in the research, Because the current research requires calculating the return and risk of the optimal investment portfolio for each year, The following table is presented for 2007 and the same steps will be taken in the calculation of the remaining years of the research sample. Which is displayed as follows.

Table (3)
Monthly Market Rate, Average, Differential and Standard Deviation of Market Returns for 2007.

Market		
Rm	**M**	
	25.288	**Dec-06**
0.02432	25.903	**jaun-2007**
0.014979	26.291	**Feb-07**
0.09334	28.745	**Mar-07**
-0.07466	26.599	**Apr-07**
-0.06136	24.967	**May-07**
0.036408	25.876	**Jun-07**
0.58247	40.948	**Jul-07**
0.023249	41.9	**Aug-07**
-0.07995	38.55	**spte-07**
-0.04047	36.99	**Oct-07**
-0.06388	34.627	**Nov-07**
-0.00107	34.59	**Dec-07**
0.03778	**Rmˆ**	
0.179643	**σ m**	
0.032271	**σ2m**	

Prepared by the researcher based on the output of the computer

It is clear from the previous table (3) that the average market return (Rm) was 0.03778, which is a positive return. The standard deviation of the market (σm) reached (0.179643) and the market variance (σ2m) (0.032271).

2 - Analysis of investment return and risk of individual stocks: Based on the monthly closing price of the shares during the period of research that was adopted, the rate of return of the shares can be calculated as a whole , The following is the presentation and analysis of the results of investment return and risk of the Babylon Bank stock as a model for 2007.

Table (4)
Analysis of the investment return and risk of Babylon Bank stock in 2007.

Babylon Bank	
Ri	**P**
	1
-0.95	**0.05**
20	**1.05**
0.142857	**1.2**
-0.08333	**1.1**
-0.09091	**1**
0	**1**
0.75	**1.75**
-0.17143	**1.45**
-0.06897	**1.35**
-0.11111	**1.2**
-0.08333	**1.1**
0.136364	**1.25**
1.62251	**Riˆ**
5.799546	**Σi**
33.59518	**Unsys**
33.63474	**Var**
1.58473	**Alpha**
0.03956	**Sys**

Prepared by the researcher based on the output of the computer

From the previous table (4), the average return per share was (1.62251) Which is a positive return and means the high frequency of financial activity of the Bank of Babylon from the point of view of investors in the Iraqi stock market during

the year 2007, The standard deviation value has reached (5.799546) Which is a high value, which indicates the overall risk of the bank, The stock beta was valued at (0.03956) which is a positive value, which means the relationship between the movement of the stock and the market is a positive movement.

We have adopted the same procedures in the calculation of the rest of the banks in the sample research, Therefore, the following table (5) includes a comprehensive presentation of all the results of the return rate , the standard deviation and beta stocks in sample banks.

Table (5)
Comprehensive view of the analysis of the sample input for 2007.

Sys	Σi	Ri	Company	Sector	
	0.179643	0.03778		market	
0.736917	0.1466	0.0037	Iraqi Islamic Bank	Bank	1
1.292729	0.734866	0.15256	Commercial Bank of Iraq		2
0.345502	0.300197	0.06069	Middle East Bank		3
0.637063	0.168884	-0.0356	Dar es salam Investment Bank		4
0.03956	5.799546	1.62251	Babylon Bank		5
0.462838	1.969134	0.48963	National Bank of Iraq		6
1.130626	1.21899	0.30466	Gulf Commercial Bank		7
-0.03789	0.08323	-0.005	United Bank		8
0.883715	0.221461	0.05706	Bank Of Baghdad		9
0.918875	0.192012	-0.007	Investment Bank of Iraq		10
0.50201	0.125049	-0.0017	Credit Bank Of Iraq		11
0.699245	0.214702	0.00963	Sumer Commerical Bank		12
0.104618	0.074126	0.00663	Mosul Bank		13
1.102951	0.32806	0.1532	North Bank		14
-0.0043	0.13968	0.00877	Union Bank Of Iraq		15
1.537066	0.322285	-0.0258	Kurdistan International Bank		16
-0.06338	0.098175	0.02948	Ashur International Bank		17

Prepared by the researcher based on the output of the computer

As shown in table (5) above the Bank with the highest return of the 17 banks in 2007 is Babil Bank which amounted to (1.6225), This means high economic activity in Bank No. (5), The bank with the lowest returns is represented by (4) Dar al-Salaam Bank amounted to (-0.0356). This shows the downward movement of the bank's shares, standard deviation was the highest during the year (5.799546) represented by the Bank of Babylon and compared to the standard deviation of the market (0.179643). This means that the overall risk of the bank is high compared to the financial market risk, The minimum standard deviation was (-0.06338) represented by the Bank of Mosul and compared to the market standard deviation of (0.179643) which indicates a

decrease in the overall risk of the bank, while the beta coefficient has reached the highest value of bank's Beta in the research sample for the year (1.537066) for the bank of Kurdistan. This shows that the movement of stocks more volatile than the movement of the market, The lowest value of the Beta coefficient was (-0.06338) for the Bank of Assyria, This indicates that the relationship between the stock and the market is inverse.

The second topic

Building the optimal investment portfolio using a single index model

After the necessary inputs have been prepared to build the optimal investment portfolio in the first section, the optimal annual portfolio will be built for the length of the research period (2007-2016).

1.2.3: Building the optimal investment portfolio for 2007 year.

1 - Determining the return and risk of the shares and the Trainor index for the research sample

Table (6) shows the ranking of the shares according to the TRAINOR index (from top to bottom), whereby the desired percentage of the stock is determined for the entry in the portfolio. The table includes the rate of return for each share of the sample shares, The market to the variability of market returns, as well as the rate of return of the risk-free asset.

Table (6)

Rate of return realized, beta coefficient, treasury bills interest rate and trainor index for research banks sample of 2007.

Trynor	SYS	Kr	Rf	Company	
46.83	-0.004	0.0088	0.21	Union Bank Of Iraq	15
35.71	0.0396	1.6225	0.21	Babylon Bank	5
5.673	-0.038	-0.005	0.21	United Bank	8
2.848	-0.063	0.0295	0.21	Ashnr International Bank	17
0.604	0.4628	0.4896	0.21	National Bank of Iraq	6
0.084	1.1306	0.3047	0.21	National Bank of Iraq	7
-0.04	1.2927	0.1526	0.21	Commercial Bank of Iraq	2
-0.05	1.103		0.21	North Bank	14
-0.18	0.8496	0.0571	0.21	Bank Of Baghdad	9
-0.15	1.5371	-0.026	0.21	Kurdistan International Bank	16
-0.24	0.9189	-0.007	0.21	Investment Bank of Iraq	10
-0.28	0.7369	0.0037	0.21	Iraqi Islamic Bank	1
-0.29	0.6992	0.0096	0.21	Sumer Commerical Bank	12
-0.39	0.6371	-0.036	0.21	Dares salam Investment Bank	4
-0.42	0.502	-0.002	0.21	Credit Bank Of Iraq	11
-0.43	0.3455	0.0607	0.21	Middle East Bank	3
-1.94	0.1046	0.0066	0.21	Mosul Bank	13

Prepared by the researcher based on the output of the computer

Table (6) shows that the highest value of the Trainor Index (46.83) for the Iraqi Union Bank and the lowest value of the Trainor Index (-1.94) for the Bank of Mosul.

2 - Determine the rate of cutting and shares nominated for the optimal portfolio :

After the shares of banks are arranged according to the Trainor index, the next step will be the calculation of (Ci) according to its equivalence on the theoretical side,

which constitutes the basis for determining the eligible shares to enter the optimal portfolio and the shares that are excluded, as well as determining the optimum cut rate

(c *) Which complements the calculation of the weights of the optimal investment portfolio components. The shares with the highest value of the Trainor index are entered in comparison with Ci and the exclusion of the lower value shares of the Trainor index compared to Ci by following table:

Table (7)
Determining the cut rate and the preferred shares for the optimal portfolio of 2007

Ci	1+σ2m∑B^2/unsys	σ2m∑(Ri-Rf)B/unsys	∑B^2/unsys	∑(Ri-Rf)B/unsys	B^2/unsys	(Ri-Rf)B/unsys	Trynor	unsys	sys	Ri^	Rf	company	
0.00117	1.0	0.00117	0.00078	0.03632	0.00078	0.03632	46.8262	**0.023808**	**-0.0043**	**0.00877**	0.21	Union Bank Of Iraq	15
0.00123	1.0	0.00123	0.00082	0.03798	4.7E-05	0.00166	35.7058	**33.59518**	**0.03956**	**1.62251**	0.21	Babylon Bank	5
0.00708	1.0	0.00709	0.03286	0.21972	0.03203	0.18174	5.6734	**0.044817**	**-0.03789**	**-0.005**	0.21	United Bank	8
0.01211	1.0	0.01215	0.08787	0.37642	0.05501	0.15669	2.84841	**0.073016**	**-0.06338**	**0.02948**	0.21	Ashur International Bank	17
0.01331	1.0	0.01337	0.1506	0.41432	0.06274	0.0379	0.60415	**3.41465**	**0.462838**	**0.48963**	0.21	National Bank of Iraq	6
0.0206	1.1	0.02309	3.74834	0.71554	3.59774	0.30123	0.08373	**0.35531**	**1.130626**	**0.30466**	0.21	National Bank of Iraq	7
0.02504	1.0	0.02627	1.52814	0.81419	-2.2202	0.09865	-0.0444	**-0.7527**	**1.292729**	**0.15256**	0.21	Commercial Bank of Iraq	2
0.02803	1.0	0.02831	0.30593	0.87713	-1.2222	0.06294	-0.0515	**-0.99533**	**1.102951**	**0.1532**	0.21	North Bank	14
0.0349	1.0	0.03412	-0.6949	1.05728	-1.0008	0.18016	-0.18	**-0.72125**	**0.849615**	**0.05706**	0.21	Bank Of Baghdad	9
0.04574	0.9	0.04228	-2.3434	1.31021	-1.6485	0.25293	-0.1534	**-1.4332**	**1.537066**	**-0.0258**	0.21	Kurdistan International Bank	16
0.05549	0.9	0.04958	-3.3006	1.53632	-0.9573	0.2261	-0.2362	**-0.88201**	**0.918875**	**-0.007**	0.21	Investment Bank of Iraq	10
0.06494	0.9	0.05644	-4.0597	1.74881	-0.7591	0.21249	-0.2799	**-0.71543**	**0.736917**	**0.0037**	0.21	Iraqi Islamic Bank	1
0.075	0.8	0.06336	-4.8083	1.96332	-0.7486	0.21451	-0.2866	**-0.65315**	**0.699245**	**0.00963**	0.21	Sumer Commerical Bank	12
0.08703	0.8	0.07165	-5.4752	2.22041	-0.6669	0.25709	-0.3855	**-0.60854**	**0.637063**	**-0.0356**	0.21	Dar es salam Investment Bank	4
0.09758	0.8	0.07871	-5.9934	2.43893	-0.5181	0.21852	-0.4217	**-0.48637**	**0.50201**	**-0.0017**	0.21	Credit Bank Of Iraq	11
0.10768	0.8	0.08523	-6.4608	2.64093	-0.4674	0.202	-0.4322	**-0.25538**	**0.345502**	**0.06069**	0.21	Middle East Bank	3
0.11695	0.8	0.09215	-6.5712	2.85557	-0.1104	0.21464	-1.9439	**-0.09912**	**0.104618**	**0.00663**	0.21	Mosul Bank	13

Prepared by the researcher based on the output of the computer

It is clear from the previous table (7) The preferred shares to enter the optimal portfolio are the shares of banks where the

value of the Trainor index is higher than the cut rate (Ci)The optimum cutting rate for 2007 was (0.021). The number of shares in the optimal investment portfolio for 2007 was (6) shares only represented by (Bank of the Iraqi Union, Babylon, United, Bank of Assyria, the National Bank of Iraq, Gulf Bank).

After we identified the shares in the investment portfolio for 2007. The next step is to determine weight and this requires calculating the values of (Zi).According to the equations mentioned in the theoretical side and the results shown in Table (8).

3. Determine the investment weight of each share in the optimal portfolio.

Table (8)
The relative weight of each share within the optimal investment portfolio for 2007.

Wi	Zi		Company	
0.550027		46.805 63		15
-0.00274	0.0420208	35.685 19	Babylon Bank	5
0.311136	-4.779053	5.6527 96	United Bank	8
0.1598	-2.454524	2.8278 06	Ashur International Bank	17
-0.00515	0.0790977	0.5835 53	National Bank of Iraq	6
-0.01308	0.200875	0.0631 27	National Bank of Iraq	7
$\sum wi$ 1	$\sum zi$ - 15.36			

Prepared by the researcher based on the output of the computer

4 - Determining optimal portfolio return and risk :

After determining the optimal components and weights of the stocks in the portfolio, we can determine the return and risk outcomes of the optimal investment portfolio as in Table (9).

Table (9)
Return and risk of the optimal investment portfolio for 2007.

مخاطرة المحفظة المثلى		عائد المحفظة المثلى					اسهم المحفظة المثلى
	Rp SYSp UNSYSp VARp	wi*sys	wi alpha	Alpha	Wi UNSYS	UNSYS	
		-0.00236	-0.01596	-0.02901	0.013095021	0.0238	Union Bank Of Iraq
		-0.00011	-0.00434	1.58473	-0.091907332	33.595	Babylon Bank
		-0.01179	-0.0133	-0.04274	0.013944133	0.0448	United Bank
		-0.01013	-0.00133	-0.00831	0.011667912	0.073	Ashur International Bank
		-0.00238	-0.00233	0.451843	-0.017584036	3.4146	National Bank of Iraq
		-0.01479	-0.00349	0.266881	-0.004646675	0.3553	National Bank of Iraq

Prepared by the researcher based on the output of the computer

This is why the first hypothesis that "stocks in each investment portfolio are optimal for the banking sector from one year to another" should be rejected as the shares in each portfolio are not identical from year to year.

The third topic
Evaluating the performance of the optimal investment portfolio using financial methods. After the inputs were prepared to build the optimal investment portfolio in the first section(**topic**) and the optimal annual portfolio was built during the research period from (2007 - 2016) in the second section(**topic)**, the performance of the optimal investment portfolio is now evaluated using the financial methods (Sharp scale, Trainor, Jensen).

Optimal Portfolio Performance Assessment for2007.
After the return and portfolio risk was determined in the previous section, The optimal portfolio performance is now assessed on the basis of its risk adjusted return, By calculating the values of the three indicators Sharp scale, Trainor, Jensen) for this portfolio. And compare them with the performance of the market portfolio, and the same procedures are adopted on the research sample, The table shows the results of the evaluation.

Table (10)
Evaluation of optimal portfolio performance.

		MARKET PORTFOLIO			OPTIMAL PORTFOLIO
0.03778	Rm^		-0.042077	Rp	
0.179643	σ m		0.0339985	SYS$_p$	
0.032271	σ2m		-0.075431	UNSYS$_p$	
-1.13120515	SHARPE		-0.041432	VAR$_p$	
-0.17222	Treynor		0.2035485	SD	
-0.424297	Jensen		3.341818	SHARPE	
			-7.41434	Treynor	
			-0.25793	Jensen	

Prepared by the researcher based on the output of the computer

Table (10) above shows the optimum portfolio return is low (-0.042077) which is a negative indicator of the decline and deterioration of the shares movement compared to the return of the market portfolio, which came as a positive value of (0.03778). The standard deviation of the optimum portfolio was (0.2035485) which is a high value compared to the standard deviation of the market portfolio reached (0.179643), this indicates the overall risk premium of the portfolio, The portfolio beta (0.0339985), which indicates an increase in systemic risk of the optimal portfolio, The non-systemic risk of the portfolio was(-0.075431) which is a low value compared to the market variance of (0.032271).This shows that the variation in the movement of the non-associated stock with market action is very low. The performance of the portfolio was positive according to the Sharp index with a value of (3.341818). Which means that it is better than the market performance of (-1.13120515),The performance of the best portfolio according to the index of Trainor was very low as it amounted to (-7.41434) compared to the performance of the market portfolio valued (-0.17222). Although both have a weak negative performance, the performance of the market portfolio is better than the optimal portfolio, The performance of the optimal portfolio by the Jensen Index was negative also "(-0.25793). In comparison with the market performance of (-0.424297).Although both perform poorly, the optimal portfolio performance is better than the market.

" The second hypothesis that "the results of evaluation methods for optimal investment portfolio performance" is not consistent with the results of the evaluation of the indicators used should be rejected " .

Conclusions

Through what was put forward in the theoretical and practical side, the researcher came to a set of conclusions are:

1 - The shares included in the composition of the optimal investment portfolio of banks listed in the Iraqi market for securities from one year to another during the period of research (2016-2007) were asymmetric as follows:

- 2007 (6) shares were entered only in the composition of the optimal investment portfolio.

2 - Among the most bank stocks entered in the composition of the optimal investment portfolio within the Iraqi stock market during the period of research 2016-2007 are the shares :
Islamic Bank
- Commercial Bank of Iraq.

- Union Bank.
-United Bank.
-Al - Mansour Bank.
-Kurdistan Bank.
-Al Ahli Bank of Iraq.

3 - The average return of the Iraqi market for securities fluctuated during the period of research (2016-2007). The average market return in 2007 was 0.03778 compared with the average market return in 2016 (0.00395), which in turn was a reason for "the instability of the Iraqi stock market during the period of research.

4 - Risk levels between banks are clearly fluctuating from year to year, but overall, the market risk increased in 2007 to (0.17964) compared to the market risk in 2016 as it decreased to (0.07545).

5. The results of the three rating methods (Sharp, Trainor, Jensen). for optimal portfolio performance are not consistent with the market portfolio from year to year.

6 - The results of the measurement proved that building the optimal investment portfolio in accordance with the model of one index leads to efficient performance of investors in the construction of their investment decisions by identifying the most desirable shares and composition of their investment portfolio, which is characterized by return and risk through the index Trainor compared to the rate of cutting.

7 - Sharp index is similar to the Trainor index because both use the excess return to the risk scale in the valuation of securities within the portfolio, But the Sharp index is consistent with the difficulty in forming a portfolio of good diversification because of the difficulty of eliminating the risk of non-systemic and depends on the standard deviation, and the Treinor index uses systemic risk beta.

Recommendations

Based on the conclusions reached through the research, we recommend a number of recommendations, the most important of which are:

1 - The need for investors to adopt the single-index method in building the optimal investment portfolio due to the high capacity of this model in reducing the type of data and quantity and the ability to produce good stocks that are good in building the portfolio to achieve the best performance for investment.

2 - The need to guide the Iraqi banks listed in the Iraqi stock market (which did not enter into building investment portfolios for the research sample years) on activating their financial and operational capabilities to achieve the efficiency necessary to enter the optimal investment portfolio through the creation of efficient operational and financial mechanisms.

3 - Increasing the awareness of investors and key players in the Iraqi stock market in the field of determining the effective limit and how to finalize it on the ground, through lessons and courses of application it in the internal and external markets.

4 - The necessity of Iraqi banks to seek and choose banking competencies capable of building banks in an efficient consistent with developments in the global banking sector.

5 - Pursuing by the management of the Iraqi stock market to raise the level of market performance by increasing the level of transparency and accuracy of information, which will reflect on the efficiency of the market.

6 - Increasing the importance of special instructions and legislation in the financial

market to ensure the accuracy of the process of safety , secrecy and investment, which generates increased confidence by domestic and foreign investors in the market and thus will reflect on the volume of investment in the market.

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