The effect of some suggested factors for (Fama & French) on the return on the investment portfolio of a sample of banks listed in the Iraqi Stock Exchange: An applied study

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Abstract

The research aims to identify the content of some of the proposed factors of (fama & French) represented by the size of the company and the model of the market value of the book value and the extent of their impact on the return of the investment portfolio for a sample of banks listed in the Iraq Stock Exchange and to understand the possibility of improvement in the performance of the financial market on investment in the portfolio Investment, and the research community was represented by the banks listed in the Iraq Stock Exchange, while the research sample was represented by (4) banks listed on the Iraq Financial Market for the period (2016-2014) for a period of three years, and for testing and analyzing research hypotheses, statistical methods represented by the correlation coefficient and coefficient Simple linear regression and through the SPSS V.20 statistical program, as the researchers concluded that there is no statistically significant effect of the research model on the return of the investment portfolio , while the researchers

recommended that more studies be carried out using the (fama & French) model and on various investment sectors and the need to Investors reconsider their investment method.

Key words: (fama & French) model**,** company size**,** ratio of market value to book value**,** return on investment portfolio.

Introduction

Both (Fama and French) presented, through their study, several factors, including the company size factor (SMB), which is based on the average market value of companies, as small companies have a greater risk than large-sized companies, so the return of small companies is greater than the return of large companies, As for the ratio of the market value to the book value (B/M), which is calculated by dividing the market value by the book value, if the ratio of the market value is greater than the book value, then the investor is optimistic about the future of the stock, and vice versa if the ratio of the market value is less than the book value, then the investor The investor are pessimistic about the future of the stock, so companies that have a high ratio of market value to book value B/M will have a greater return than companies that have a low rate of market value ratio to book value B/M. As for the return of the investment portfolio, the return contributes to determining the investors' orientations and desires to undertake various investments, as it expresses an expected result for the investment of funds for a period of time, and represents the weighted arithmetic average of the rates of return of the constituent securities weighted by their relative weights research included three main topics, as the first topic dealt with the research methodology, through which it addressed the importance of the research, the problem, the objectives, the hypothesis, the society and the research sample, while the second topic focused on the Theoretical framework with two main points, the first point represented by identifying some of the proposed factors for (Fama and French, including the company size factor and the market value ratio factor to the book value, while the second point focused on the concept and measurement of the return on the investment portfolio, while the third topic included the applied

framework by describing and analyzing data and testing hypotheses to end the research with some conclusions and recommendations.

The first topic: research methodology

First: Research Significance

-:The importance of the research is reflected in the following

1- Knowing the possibility and impact of the company's size factor and the ratio of the market value to the book value on the return of the investment portfolio in a way that helps portfolio managers in building their investment portfolios and for the purpose of maximizing their returns and reducing the level of risk to an acceptable limit.

2- Provide some insights that can contribute to the pricing of capital assets, and help financial decision makers in particular and those interested in general in providing some additional information through which financing and investment decisions can be taken appropriately.

Second: Research Problem

The research problem can be clarified through the following questions:

1) A statement on whether there is a statistically significant effect of the size of the company on the return the investment portfolio of the research sample banks?

2) A statement on whether there is a statistically significant effect of the market value to book value ratio model on the return the investment portfolio of the research sample banks?

Third: Research Objectives

The research seeks to achieve a set of objectives according to the theoretical framework and analytical deductive fields it presents. so research is expected to achieve the following objectives:

1- Understand some of the proposed factors for (fama & French) represented by the size of the company and the market value ratio model to the book value and the extent of their impact on the return the investment portfolio in Iraqi banks, research sample.

2- The possibility of improvement in the performance of the financial market on investment in the investment portfolio.

3- Study the relationship between the market value to the book value of the bank and its impact on the return on the investment portfolio.

Fourth: Research hypothesis

According to the questions raised by the research problem, the following hypotheses can be put:

1- **The first hypothesis**: There is a statistically significant effect of the company size model on the return the investment portfolio of the research sample banks.

2-**The second hypothesis:** There is a statistically significant effect of the book value ratio model to the market value on the return the investment portfolio of the research sample banks.

Fifth: Society and research sample

The research community consists of banks listed in the Iraq Stock Exchange, while the research sample was represented (4) banks listed in the Iraq Stock Exchange for which the necessary data are available for a period of three years for the period from (2014_2016). Table (1) shows the research sample:

Table No (1)

the banks included in the study sample

	The Company's name	Date of Establishment
1	Al-Mansour Investment Bank	2005/09/13
2	Sumer Commercial Bank	1999/05/26
3	Iraqi Crediton Bank	1998/07/25
4	National Bank of Iraq	1995/02/01

The second topic: the theoretical framework

First, The (Fama & French) model: Is an expanded pricing model that differs from the Capital Asset Pricing Model-CAPM in that it includes risk factors, value-at-risk factors and risks to which the markets are exposed. Therefore, this model supports the truth that claims The performance of

the shares of small companies is higher than the performance of the shares of large companies, and this model is also a good tool for evaluating the performance of the company's management. Nobel laureate Eugene Fama and researcher Kenneth French, two former professors at the University of Chicago's Booth School of Business, have tried to better measure market returns and found through research that stocks with a face value Outperform growth stocks, and also find that stocks of small companies tend to outperform stocks of large corporations (https://www.meemapps.com/term).

Therefore, (Fama & French 1993) expanded the basic CAPM capital asset pricing model to include the company size factor and the ratio of the market value to the book value as factors that are not explained in the explanation of the average stock returns statement. As several factors were put forward by (Fama & French), which in turn affect the stock returns and give a clear explanatory power to the returns, which are:

1. The size of the company: The size of the company means the classification of companies into small-sized companies and other large-sized companies, and there are several metrics by which the size of the company is measured, namely: total assets, the market value of the company, book value, total sales and number of employees within the company (Musa et al., 2009: 9).

Where many studies have proven that the size of the company has an impact on the returns, where these studies confirmed that the smaller the size of the company, the greater the risk-weighted return. and others, 2012: 105). To illustrate the scale factor, the following assumption has been made: that the profits of a small firm are more sensitive to unexpected changes in interest rates than the profits of large firms. Since it is difficult to predict the interest rate path for investors who own small-cap stocks to take on more risk (as a result of unexpected fluctuations in the rate of return on their portfolios) than if they avoided those stocks" and to induce them to hold the stocks of the small-cap stocks, the market should Provide an expected rate of return higher than that of small-cap stocks, and for any company, the risk ratio resulting from the effect of size

is sensitivity to the rate of return of that company according to changes in the rate of return on the company's size factor (Barfild, 2007: 242).

To know the impact of the company’s size factor, Fama and French arranged all traded shares. According to the volume factor, Fama divided it into two portfolios. The first portfolio included the shares of small companies, and the other portfolio included the shares of large companies, then the return of each portfolio was collected and a third portfolio was formed. The difference between the returns between the two portfolios, and the goal of establishing this portfolio is to measure the difference between the returns of the portfolios of small and large-sized companies (Al-Barakat, 2009: 22). To form a volume portfolio, stocks are sorted into two-volume portfolios in the financial market, consisting of a portfolio of small-sized companies and a portfolio of large-sized companies, by depending on whether the value of the shares is above or below the market average, and the size of the company (SMB) factor represents the difference The average return for a portfolio of small companies and the average return for a portfolio of large companies (Nguyen, 2015:9).

Therefore, through this difference, a third portfolio was deduced by subtracting the return on the large portfolio from the small portfolio (Small minus Big), as this portfolio was designed to measure the change in stock returns that occurred due to the effect of size (Brigham et al., 2009: 322). According to the size factor in the model, if small companies are riskier than large companies, this means that small companies have higher equity returns than large companies (434: 1992, Fama and French. As the median of the market value of the shares of companies was used to distinguish between large-sized companies and small companies, companies whose market value is higher than the average are classified as large-sized companies, while companies whose market value is less than the average are classified as small-sized companies (Yusuf, 1992: 35-1).

2. The ratio of the book value to the market value: - As for the factor of market value/book value of companies, which is included in the (Fama and French) model, as the ratio of the book value to the share of one share of the net assets The company (Abdul-Zahra et al.

2014: 194). The book value "is the value recorded in the company's books, which is the net value of the share after calculating the historical value of the joint-stock company's assets and the obligations that it bears. It may increase because it rises after a period of trading. After all, the remaining earnings per share are added to the book value that has not been distributed and paid to stockholders, and similarly, Losses are deducted from the book value of the share and reduced at the loss.

As for the market value, it is the price of the stock in the market and it is the result of the stock trading according to the market condition if its trend is upward or downward under the influence of supply and demand factors and according to expectations based on the company's current performance, profits and losses. The investor obtains the market value by selling the stock in the market Financial (https://www.trend-cast.com/blog). Therefore, the market value of the stock is one of the most important values from the investor's point of view, and it generally reflects the economic value of property rights (net assets) as it is determined by the surrounding economic factors, and the market value is greatly affected by the rates of profits that the company distributes to the capital shares. The higher the market value of the share (Marei, 1993, 345). (B/M) is an abbreviation for the market value divided by the book value, as the model assumes that if the market value of the stock is less than the book value, then the investor is pessimistic about the future of the company and investing in it. And vice versa, if the market value is greater than the book value, the investor is optimistic about the future of the company invested in its shares (Srimarksuk, 2007: 58) (Al-Nawajah, 2014: 80).

As (Fama and French) see that the high returns of shares with a high B/M ratio reflect the high risk they have, which cannot be eliminated by diversification, and therefore it must be priced separately from the market risks, as the market return cannot contain it (Darwish 2008, 171).

Portfolios with a high BV/MV ratio are known as "value portfolios," while portfolios with a low BV/MV are known as "growth portfolios" (Al-Kur; El-Zetif, 2018: 14).

Second, The return on the investment portfolio: To assess the financial situation of business establishments and the high levels of risk that may increase the return achieved by business

establishments, so business establishments seek to achieve a trade-off between return and risk, “thereby minimizing risks to their minimum levels and maximizing returns” (Al-Makhlafi, 2014: 52_53). The return is the sum or amount of profits or losses resulting from the investment during a certain period, “the return is the amount of money added to the original capital to maximize the level of wealth.”

The actual returns are characterized by a high degree of certainty, unlike the expected returns, which are not characterized by the degree of certainty. “The investment portfolio is concerned with the return, as every decision issued in the form of profit or loss may have a positive or negative impact on this decision. The success rate in obtaining a return on investments is related to the degree of risk. that you are subjected to”. Therefore, we say that every investment has a degree of risk, and the relationship between return and risk is a direct relationship, as the higher the return, the higher the risk, and vice versa (Al Shabeeb, 2010: 61).

So, the return is one of the most important variables of the investment process, as it measures the speed with which the wealth of investors increases or decreases. Therefore, what the investor cares most about is the added value that is obtained by making his investments and sacrificing his money, which is embodied by the rate of return and can be calculated and estimated according to The change in the investor's wealth during a period (Al-Sultan, 2010: 16).

1. Measuring the return of the investment portfolio: - The return of the portfolio RP is defined as “a weighted average of the sum of the returns of the investments” “the papers” that make up the investment portfolio (Al-Dagher, 2007: 205):

- That is the return of the portfolio = the sum of the returns of the securities weighted by their investment weights. The return of the portfolio is the weighted average of the returns of the stocks that make up the portfolio, which is calculated by multiplying the return of each share by its weight in the portfolio, that is, the ratio of the amount invested in each share to the total amount of investment in all the stocks that make up the portfolio. (Brigham & Davis, 2004: 40) The portfolio return is the weighted average percentage of the securities that make up the portfolio (Al-Sultan, 2010 (18).

- As most investors put their money invested by them in multiple shares and not in one share, and the aim is to reduce potential risks, and this group of shares is called the investment portfolio." (Lashar, 2011: 418)).
- The rate of return of the investment portfolio is the weighted average of the returns of its components. The relative weight of each component must be taken into consideration, which is the percentage of what is invested from each component of the portfolio. The portfolio return is the weighted average of the returns of the assets that make up the portfolio, and it can be expressed by the following equation: (Ehrhardt, Brigham, 2011: 231-232):

$$\hat{r}_p = \sum_{i=1}^{n} w_i \hat{r}_i$$

Ri: portfolio return.

Wi: The ratio of the investment in the paper to the total investment in the portfolio (weight)

R i: The yield of the security.

The third topic: application framework for research

First, Description and analysis of the research data

1. **Independent variables: They are represented by the following:**

A. The size of the company: Table (2) shows the size of the company based on the average market value of the companies for the years of research for the period (2014-2016):

Table (2)

The size of the company depending on the average market value of the research sample companies

Bank name/year	2014	2015	2016	General average	Company Size SMB
Sumer Commercial	250.000	237.500	225.000	237.500	Large companies
Iraqi credit	262.500	147.500	187.500	199.166	Small businesses
Al-Mansour Investment	210.000	217.500	247.500	225.000	Large companies
Al-Ahly of Iraq	225.000	136.500	102.500	154.666	Small businesses
General average				204.083	

Table (2) shows that the highest value of the company's size for the year 2014 was for the Iraqi Credit Bank, which amounted to (262,500) as a large-sized company. As for Al-Mansour Bank, it was entitled to the lowest value for the size of the company, amounting to (210,000), and the rest of the banks were between those two percentages, either in 2015 and it was The highest value of the company size was for Sumer Commercial Bank, which amounted to (237,500) as a large-sized company, either the lowest value for the size of the company was for Al-Ahly Bank, which amounted to (136,500) as a small-sized company, and in 2016 the highest value for the size of the company was for Al-Mansour Investment Bank, which amounted to (247,500) as a large-sized company. While the lowest value for the company's size was (102,500) as a small-sized company, and the rest of the banks were between those two percentages.

B. The ratio of the market value to the book value

The factor of the market value ratio to book value B/M is calculated by dividing the company’s market value by the book value. Table (3) shows the market value MV and book value BV data for the research years (2014-2017:

Table (3)

Extracting the ratio of market value/book value

Bank	2014			2015			2016			Rate
	MV	BV	B/M	MV	BV	B/M	MV	BV	B/M	B/M
Sumer Commercial	250000	1.039	240.61	237500	1.053	225.54	225000	1.069	210.47	22.554
Iraqi credit	262500	1.161	226.09	147500	1.207	122.20	187500	1.227	152.81	16.703
Al-Mansour Investment	210000	1.127	186.33	217500	1.155	188.31	247500	1.150	215.21	19.661
Al-Ahly of Iraq	225000	1.054	213.47	137500	1.042	131.95	102500	1.151	89.052	41.198

Table (3) shows that the ratio of B/M for the year 2014 of Sumer Commercial Bank amounted to (240.61), which is the highest ratio, while the ratio of the Iraqi Credit Bank was (226.09), while the ratios for the rest of the banks were between those two ratios, as you know these portfolios in which they are The B/M ratio is high as “value portfolios”, while the portfolios in which the ratio is low are known as “growth portfolios”. As for the year 2015, the highest value for the B/M ratio for Sumer Commercial Bank amounted to (225.54), while the lowest percentage for the Credit Bank of Iraq amounted to (122.20).), As for the year 2016, the highest value of the B/M ratio was for Al-Mansour Bank for Investment, which amounted to (215.21), while the lowest percentage for the National Bank of Iraq amounted to (89,052).

2. The Dependent variable: Consists of the following:

A. The return on the investment portfolio:- Table (4) shows the return on the share and the return on the investment portfolio (Rp) for the research sample banks (2016_2014):

Table (4)

Shows the calculation of the portfolio return for the research sample

Bank	2014			2015			2016			Total portfolio return
	Ri	Wi	Rp	Ri	Wi	Rp	Ri	Wi	Rp	

Sumer Commercial	0.008	5	0.04	0.014	9.150	128.1	0.150	46.58	698.7	275.6
Iraqi credit	0.054	33.75	1.822	0.05	32.67	163.3	0.02	6.211	124.2	96.44
Al-Mansour Investment	0.068	42.5	2.89	0.079	51.63	407.8	0.058	18.01	104.4	171.6
Al-Ahly of Iraq	0.030	18.75	56.25	0.010	6.53	0.065	0.094	29.19	274.3	110.2
General average	0.16			0.153			0.322			

Table (4) above shows the calculation of the return on the investment portfolio of the research sample banks for the period (2014_2016) and a period of three years, as the highest return for the year 2014 was for the National Bank of Iraq, amounting to 56.25, while Sumer Commercial Bank achieved the lowest return, which amounted to (0.04), while the National Bank of Iraq achieved Al-Mansour Investment had the highest return for 2015 amounting to (407.8), followed by Sumer Commercial Bank and Iraqi Credit (128.1,163.3), respectively, while the lowest return for the portfolio was for Al-Ahly Bank, which amounted to (0.065), while in 2016 the highest return was for Sumer Commercial Bank, which amounted to (698.7) followed by the National Bank of Iraq as the highest return, while the lowest return of (104.4) was for Al-Mansour Investment Bank.

Second, Testing the research hypotheses

1. **Testing the first hypothesis:-** Table (5) shows the simple regression coefficients of the company size model and the return on the investment portfolio of the banks listed in the Iraq Stock Exchange - the research sample.

Table (5)

Simple regression coefficients for company size and portfolio return

Total years	R	R Square	B	Coefficients		Anova	
				T	Sig	F	Sig
	0.76	0.58	-185.7	-0.89	46%	2.87	23%

Table (5) shows that the value of the correlation coefficient (R) between the independent variable of the company's size as a parameter of the Fama and French model and the portfolio return as a dependent variable, amounted to 0.76 and this shows the strong positive correlation between the two variables, while the percentage of the coefficient of determination that explains the change in the dependent variable The statistical measure that measures the extent to which the dependent variable (the portfolio return) is affected by the independent variable (the size of the company) of (R2) is 0.58%. This means that the independent variable (the size of the company) explains 0.58% of the change in the dependent variable of the return of the portfolio, that is, the There is a percentage of 42% representing other factors that were not included in the research to explain this change, and the value of the regression coefficient (B) reached 185.7, which means that one unit change in the independent variable (company size) leads to a change of 185.7 in the dependent variable (return of the portfolio). While the value of (T) was -0.89 with a significant percentage of 46%, which means that there is no effect of the independent variable (company size) on the dependent variable, and this is confirmed by the (F) test, as its value reached 2.87 and with a significance of 23%, which shows the invalidity of the model, and this explains the rejection of the hypothesis The first is that there is no statistically significant effect of Change of the independent (company size) on the dependent variable (return of the portfolio).

2. **The second hypothesis test:** Table (6) shows the simple regression coefficients of the market value ratio model to the book value of the banks listed in the Iraq Stock Exchange - the research sample.

Table (6)

Simple regression coefficients for the ratio of market value to book value and portfolio return

Total years	R	R Square	B	Coefficients		Anova	
	0.23	0.05	206.1	T	Sig	F	Sig

				1.51	26%	0.11	76%

Table (6) shows that the value of the correlation coefficient (R), which measures the strength of the relationship between the independent variable (the ratio of the market value to the book value) as a coefficient of the ((Fama and French) model and the dependent variable (the portfolio return), which amounted to 0.23 and this indicates the positive and weak relationship between the two variables (The ratio of the market value of the book value and the return of the portfolio), while the ratio of the coefficient of determination for the two variables (R2) was 0.05%, which means that the independent variable (the ratio of the market value of the book) explains the percentage of 0.05% of the change in the variable dependent on the return of the portfolio, meaning that there is a percentage 95% represent other factors that were not included in the research to explain this change, while the value of the regression coefficient (B) reached 206.1, which means that one unit change in the independent variable (the ratio of the market value to the book value) leads to a change of 206.1 in the dependent variable (return Portfolio), while the value of (T) was 1.51 with a significant percentage of 26%, which means that there is no effect of the independent variable (the ratio of the market value to the book value) on the dependent variable, and this is confirmed by the (F) test, as its value reached 0.11 and with a significance of 76%, which shows the incorrectness of the model, and this It demonstrates the rejection of the third hypothesis Immediately, there is no statistically significant effect of the independent variable (the ratio of the market value to the book value) on the dependent variable, the return of the portfolio.

Conclusions and Recommendations:-

Conclusions:-

1- The analysis and testing of hypotheses indicated that there is no statistically significant effect at the level of significance (0.05 ≥ a) for the company's size on the return the investment portfolio, In the sense that the returns of large-sized companies are greater than returns small-sized companies , regardless of the risks that these companies may be exposed to.

2- Through the analysis, was concluded that there is no statistically significant effect at a significant level (0.05 ≥ a) of the ratio of the market value of the book value on the return of the investment portfolio, indicates unsuccessful of the book market value ratio to explain the rise in the return on the investment portfolio.

3- There is a strong correlation between the size of the company and the return on the investment portfolio, it is not significant, that is, the absence of a statistically significant effect. The reason is attributed to the unstable economic conditions of the country, for more than two decades, and this was proven by the first hypothesis.

Recommendations:-

1- It is necessary to conduct more in-depth and similar studies and research on this subject in various sectors to show the extent of the success or ability of the proposed factors for (Fama and French),and represented by the size of the company, And the percentage of the market value of the book value and other factors, in influencing the return the investment portfolio of the various investment sectors and comparing it with the results reached by the research to ensure the fact of relying on this model in the interpretation of returns.

2- A procedure, and the work of other studies, "to trying to add new and similar factors to the model that include more variables, especially, in the Iraqi stock market, and to show the extent of its ability to add a greater explanatory power to the currently applied model.

3- Due to the small size of the research sample as a result of the small size of the market, it should be treated with caution with the results of the research as a result of the abnormal conditions experienced by the Iraqi economy and the low levels market efficiency compared to the markets of developed countries.

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