

Applying the Fama-French model to forecast the return of seafood companies' stocks listed in Vietnam

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Abstract: Fama-French model is quite effective in analyzing and valuing financial assets. In this study, the authors will refer to and introduce the Fama-French three-factor model in predicting returns and how to forecast stock returns of seafood companies' stocks in order to bring a positive result in investing in Vietnam's stock market. The results show that at the 1% significance level, there are two variables, the market risk premium and HML (the difference between the rate of return of stocks with high BE/ME and stocks with low BE/ME) are significant. On the other hand, these two variables have an influence on the return of seafood companies' stock listed on the stock market at the significance level of 1%. Besides, the size of an enterprise has no effect on the return of the companies' stocks.

Keywords: Fama-French, rate of return, seafood company, Vietnam Stock Exchange

1. Introduction

In the context that Vietnam's stock market is still young with newly established transaction centers, the market's activities have not yet achieved the desired effect, and the number of transactions and the capitalization level are not high. In particular, the majority of investors in the market are individual investors - these are people with little experience and a lack of knowledge about securities. They mainly invest according to the psychology of the crowd and are also the ones who lose the most when the market has corrections. Given the erratic ups and downs of the Vietnamese stock market, it is important to consider factors affecting stock returns to minimize risks for all investors in general and individual investors in particular are difficult problems. This leads to finding an analytical model from which to determine the factors affecting stock returns in the Vietnamese stock market, which is very necessary. It not only helps investors have an additional tool

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for reference in their investment process but also helps to contribute to making investment activities in Vietnam's stock market more professional.

Currently, there are two commonly used models in predicting profitability: the Capital Asset Pricing Model (CAPM) model and the Fama-French three-factor model. However, both of these models are not the only ones that predict returns, but they have a solid theoretical foundation. The study of the CAPM model in Vietnam has been carried out by many authors and has also shown certain limitations, while the Fama-French model has not been thoroughly studied. Moreover, Fama-French model compared with CAPM, there are two more factors that are related to firm size (SMB) and factor related to the ratio of book-to-market price BE/ME (HML) which have shown a clear impact on stock returns, especially in emerging stock markets like Vietnam's stock market.

Therefore, in this study, the authors will refer to and introduce the Fama-French three-factor model in predicting returns and how to forecast stock returns of seafood companies' stocks in order to bring a positive result in investing in Vietnam's stock market.

2. Literature review

The Fama and French Three-Factor Model is an asset pricing model developed in 1992 that expands on the capital asset pricing model (CAPM) by adding size risk and value risk factors to the market risk factor in CAPM. After being published, the Fama-French model has received special attention from many researchers.

Research by Andreas Charitou and Eleni Constantinidis (2004) using the OLS estimation method tested Fama-French three-factor model with data from the Japanese market, from 1992 to 2001. The results showed found that market factors played the most important part in explaining the differences in returns for the six portfolios formed based on size and BE/ME ratios.

Maroney and Protopapadakis (2002) tested the Fama-French three-factor model on stock markets in countries: Australia, Canada, Germany, France, Japan, the UK, and the US. The effects of firm size and value on stock returns were found in all markets.

Faff (2001) used data on prices of stocks listed on the Australian stock market in the period from 1991 to 1999 to determine the appropriateness of the Fama-French three-factor model. The author had found consistent evidence with the Fama-French three-factor model, but the firm size was negatively related to stock

returns, not positively correlated as expected.

For emerging markets, authors like Eraslan (2013) tested the appropriateness of the Fama-French model on the Istanbul stock market from 2003 to 2010 with the OLS estimation method. The results show that the return expectation of a portfolio of stocks with a low BE/ME ratio has a higher return than a portfolio consisting of stocks with a high BE/ME ratio and firm size did not affect the returns of large portfolios but has an effect on small and medium-sized portfolios.

Homsud et al. (2009) studied the influence of three factors in the Fama-French model on the profitability of stocks listed on the Thai stock market in the period from July 2002 to May 2007. In this study, the authors divided 421 selected stocks into six categories: BH, BM, BL, SH, SM, and SL to conduct independent research. The research results showed that adding the variables of size and firm value to the CAPM model increased the explanatory power of the changes in stock returns. In other words, the Fama-French three-factor model was more suitable than the CAPM in explaining the variation in stock returns.

Ferdian et al. (2011) applied the three-factor model to measure the profitability of stocks on the Indonesian stock market. Using the closing prices of 98 stocks in the period from September 2007 to September 2009, the research results showed that in addition to beta (market risk), size and firm value were also factors affecting stock returns. However, the market risk remained the most important factor in the model.

On the Vietnamese stock market, Vuong Duc Hoang Quan and Ho Thi Hue (2008) applied the Fama-French three-factor model to study the factors affecting the profitability of stocks listed on the Hochiminh Stock Exchange. The research results showed that the portfolio of small-sized stocks had higher profitability than the portfolio of large-sized stocks.

Tran Thi Hai Ly (2010) tested the suitability of the Fama-French three-factor model for stocks listed on the Hochiminh Stock Exchange in the period from December 2004 to December 2007. The obtained results showed that book-to-market value was positively correlated with stock returns, while the firm size is inversely correlated to stock returns, i.e., returns for large firms were higher than returns for small firms.

Truong Dong Loc and Duong Thi Hoang Trang (2014) tested the suitability of the Fama-French three-factor model for stocks listed on HOSE during the period from January 2006 to December 2012. The research results showed that the return

on the stock portfolio was positively correlated with market risk, firm size, and book-to-market ratio.

Thus, in Vietnam, some results have shown the suitability of the Fama-French model for stocks on the Vietnamese stock market - the return of the portfolio of stocks depends on the size of the company, market value, book value of equity, and systematic risk premium. However, in these studies, no models had been provided to predict profitability for stocks. Therefore, in this study, we propose a model to forecast profitability for stocks, namely stocks of seafood companies listed in Vietnam.

3. Research model and method

3.1. Research model

The Fama-French three-factor model was developed to overcome the limitations of CAPM. This model assumes that the return of a portfolio or a particular stock depends on three factors: market factors, firm size factors, and book-to-market factors. On the basis of CAPM, the Fama-French model added the variables of firm size (measured by capitalization) and firm value (measured by the ratio of book value to market value - BE/ME) to the model to account for changes in stock returns. Specifically, the model has the following form:

$$R_i = R_f + \beta_i[E(R_M) - R_f] + s_i(\text{SMB}) + h_i(\text{HML})$$

In which:

R_i : Expected rate of return of portfolio i

R_f : Risk-free rate

$E(R_M)$: Expected rate of return on the market portfolio

SMB (Small Minus Big): The return on the small portfolio minus the return on the large portfolio

HML (High Minus Low): Return on high BE/ME portfolio minus low BE/ME portfolio return

β_i , s_i , h_i : Regression coefficients and expected to be positive

The Fama-French three-factor model still holds that high returns are the reward for high risk-taking. The coefficients s_i and h_i respectively measure the influence of two factors SMB and HML on the return of portfolio i . Portfolio i consisting of value stocks will have a high h_i and conversely, a portfolio consisting of growth stocks will have a low h_i . Similarly, portfolio i consisting of stocks with high market capitalization will have a low s_i , and conversely, a portfolio consisting of stocks with low market capitalization will have a high s_i coefficient.

During the research on the Fama-French model to forecast the profitability of the seafood industry, there are some notes as follows:

First, to estimate beta accurately, we need to take the stock prices of 26 seafood companies listed on the stock market over a long period of time. Indeed, most of the previous studies took stock prices in a short time, listed companies are not many, the scale is not large enough, and investors do not have much experience in valuation, so the valuation of securities is not accurate and does not provide reliable results. In this study, we have collected the closing prices at the beginning and end of the month of seafood companies listed on the stock market from January 2016 to the end of December 2021.

Second, the capitalization of these companies must be large enough to apply this model. A high level of capitalization will provide more confidence in beta estimation as well as a more accurate return forecast.

Third, the VN-Index represents the market portfolio:

The figures for a company's stock price must be that of the company listed on the official exchange. Stock trading takes place continuously, and price movements are not limited by the regulation on amplitude nor affect the reliability of the data set.

3.2. Research method and variables

Linear regression was performed for each portfolio using the Ordinary Least Square (OLS) method. However, it is difficult to put three factors into the model at the same time to evaluate the influence of each factor on the model, so we need to use the stepwise method to introduce each factor in turn. meaningful variables into the model and discarding non-significant variables.

To verify the effectiveness when applying the Fama-French model to forecast the profitability of seafood enterprises, we need to perform the following tasks:

- Portfolio division: The stock portfolio is built based on two factors: company size and BE/ME ratio.

Company size is calculated by multiplying the average monthly price by the average number of shares outstanding. Then we sort the companies by size, in which, half of the companies with the large size are classified into the big size group—denoted by “B”, and half of the companies with the small size are classified into the small size group - denoted by “S”.

The BE/ME ratio (book-to-market value) is calculated by dividing the book

value of equity by the market capitalization of the company. Accordingly, half of the stocks with high BE/ME are classified into the high book-to-market value group, denoted by “H”, and half of the stocks with low BE/ME are classified into the low book-to-market value group, denoted by “L”.

- Calculate two variables SMB and HML:

SMB (Small Minus Big) represents the portion of the risk associated with the effect of the size factor. SMB is the difference between the average monthly returns for small companies and large companies.

HML (High Minus Low) represents the portion of the risk associated with the effect of the book-to-market ratio on returns. HML is the difference in average monthly returns between firms with high BE/ME and firms with low BE/ME.

- Return on portfolio:

Average monthly return of the portfolio: We calculate the monthly return of each stock by taking (the closing price at the end of the month - the closing price at the beginning of the month)/the closing price at the beginning of the month. We then calculate the portfolio’s average monthly return by averaging the stocks’ monthly returns.

-The market rate of return and the risk-free rate:

Calculation of R_M and R_f : R_f is the rate of return on risk-free assets calculated by the interest rate of 5-year Government bonds. R_M is the market rate of return, usually, this value is chosen as the market index where the stock is listed.

In which, we calculate R_f by dividing the interest rate of government bonds in 5 years by 12.

R_M will be calculated using the following formula:

$$R_M = \frac{VNIndex_{t+1} - VNIndex_t}{VNIndex_t}$$

4. Research results

4.1. Descriptive statistics

Table 1. Descriptive statistics of variables in the model

	R_i	R_f	R_M	SMB	HML	RX	M
Mean	0.008524	0.480284	0.019190	-0.004686	-0.002771	-0.461094	-0.471760
Median	0.008502	0.481473	-0.006000	-0.006546	0.005507	-0.474477	-0.464969
Maximum	0.258852	0.727030	0.759551	0.475974	0.517354	0.347139	0.021437
Minimum	-0.229801	0.000000	-0.217866	-0.380751	-0.470987	-0.753657	-0.926117
Std. Dev.	0.067756	0.144928	0.117636	0.102291	0.124014	0.184775	0.162974
Skewness	0.0407715	-0.734122	3.889411	0.859657	0.095060	1.788552	0.349834

Source: Author's calculation

In which: $R_X = R_M - R_f$ is the market risk premium and $M = R_i - R_f$.

Based on the above statistics, we can see that the average return of SMB (the return of small companies' stocks minus the return of large companies' stocks) has a result of -0.004686. This shows an inverse relationship between firm size and the return of these firms' stocks.

When we consider the BE/ME (or HML) factor, we find that the average return of HML is -0.002771, which also gives a negative value. This shows that the BE/ME of seafood companies is inversely related to the return of these companies' stocks. Thus, companies with high stock prices or higher growth rates offer higher rates of return.

4.2. Regression results

At the 1% significance level, there are two variables, $R_X = R_M - R_f$ (or the market risk premium) and HML (the difference between the rate of return of stocks with high BE/ME and stocks with low BE/ME) are significant. On the other hand, these two variables have an influence on the return of seafood companies' stock listed on the stock market at the significance level of 1%.

At the significance level of 1%, $\beta_i = 0.640$, it means that when the market risk premium increases or decreases by 1%, the return ratio of seafood companies' stocks will increase or decrease by 0.640%. Thus, the market's risk premium is positively related to the return of seafood companies' stocks listed on the stock market, and the seafood industry has a lower risk than the market risk.

Similarly, $h_i = -0.506$ means that when the difference between the return of a seafood company's stocks with a high BE/ME and a low BE/ME increases or decreases by 1%, the return of seafood companies' stocks decreased or increased by 0.506%. Therefore, the BE/ME ratio is negatively related to the return of seafood companies' stocks, that is, firms with high market value will bring higher return than low-value firms.

Table 2. Regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.178054	0.031118	-5.721873	0.0000
R_X	0.640098	0.062561	10.231163	0.0000
SMB	-0.007794	0.148980	-0.052315	0.9584
HML	-0.506060	0.122439	-4.133176	0.0001

R-squared	0.661278
Prob(F-statistic)	0.000000

Source: Author's calculation

However, at the 1% significance level, the size of companies has no effect on the return of seafood enterprises' stock.

4.3. Applying the Fama-French model to forecast the return

In order to forecast the return, we use the simple exponential smoothing method to forecast the HML variables and the market risk premium, with the following calculation formula: $F_{t+1} = F_t + \alpha(D_t - F_t)$

In which: F_{t+1} : Forecast level of period t+1

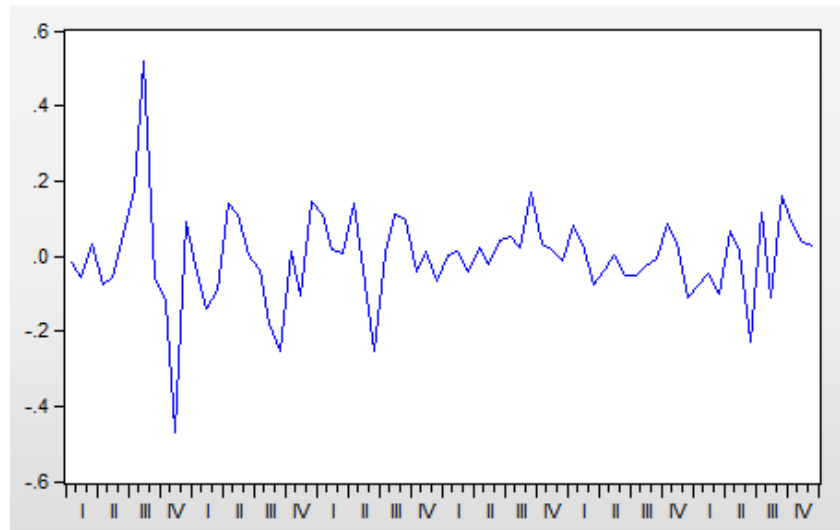
F_t : Forecast level of period t

D_t : Actual level of period t

α : Prediction coefficient by simple exponential smoothing, $0 < \alpha < 1$

- Forecast HML:

Figure 1. The evolution of HML from January 2016 to December 2021



Based on the above graph, we can see that in the evolution of HML over the observation periods, there is no obvious increase or decrease trend, or seasonality because there is no repeating cycle. Therefore, we can use a simple exponential smoothing method to predict the HML.

Table 3. Forecast of HML from January 2016 to June 2022

Month	2016		2017		2018		2019		2020		2021		2022
	D_t	F_t	D_t	F_t	D_t	F_t	D_t	F_t	D_t	F_t	D_t	F_t	F_t
1	-0,0152	-0,0087	-0,0484	-0,0086	0,1088	-0,0089	0,0049	-0,0087	0,0821	-0,0083	-0,0768	-0,0084	-0,0083
2	-0,0552	-0,0087	-0,1413	-0,0087	0,0188	-0,0088	0,0098	-0,0087	0,0307	-0,0082	-0,0471	-0,0084	-0,0083
3	0,0314	-0,0088	-0,0902	-0,0088	0,0062	-0,0088	-0,0431	-0,0087	-0,0753	-0,0082	-0,1002	-0,0085	-0,0082

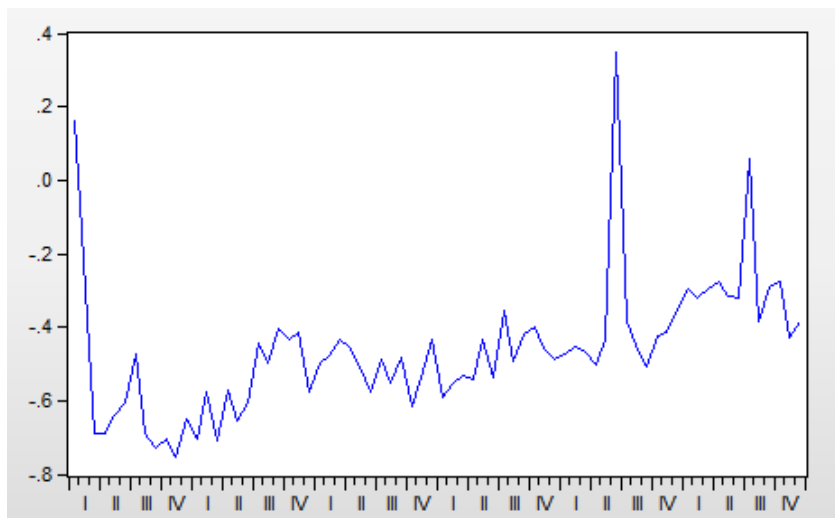
4	-0,0747	-0,0088	0,1378	-0,0089	0,1401	-0,0088	0,0231	-0,0087	-0,0367	-0,0083	0,0675	-0,0086	-0,0082
5	-0,0575	-0,0088	0,1116	-0,0087	-0,0348	-0,0086	-0,0238	-0,0087	0,0038	-0,0083	0,0120	-0,0085	-0,0082
6	0,0587	-0,0089	0,0014	-0,0086	-0,2523	-0,0087	0,0424	-0,0087	-0,0534	-0,0083	-0,2304	-0,0085	-0,0081
7	0,1733	-0,0088	-0,0387	-0,0086	0,0062	-0,0089	0,0537	-0,0087	-0,0521	-0,0083	0,1144	-0,0087	
8	0,5174	-0,0086	-0,1780	-0,0086	0,1102	-0,0089	0,0231	-0,0086	-0,0250	-0,0084	-0,1131	-0,0086	
9	-0,0581	-0,0081	-0,2508	-0,0088	0,0939	-0,0088	0,1704	-0,0086	-0,0052	-0,0084	0,1580	-0,0087	
10	-0,1188	-0,0081	0,0138	-0,0090	-0,0413	-0,0087	0,0335	-0,0084	0,0861	-0,0084	0,0805	-0,0085	
11	-0,4710	-0,0083	-0,1035	-0,0090	0,0115	-0,0087	0,0171	-0,0084	0,0373	-0,0083	0,0385	-0,0084	
12	0,0920	-0,0087	0,1471	-0,0091	-0,0648	-0,0087	-0,0105	-0,0083	-0,1095	-0,0083	0,0282	-0,0084	

Source: Author's calculation

After processing and calculating the forecast levels, we focus on looking at the forecast for the first 6 months of 2022 on the return of seafood enterprises' stocks listed on the Vietnam stock market. Based on the above forecast, we can see that the return of HML increases gradually, but not much. The negative profit margin of HML is mainly because the return of stocks with high BE/ME ratios is lower than those of low BE/ME.

- Forecast the market risk premium ($R_X = R_M -$):

Figure 2. The evolution of R_X from January 2016 to December 2021



Based on the chart above, we can see that the evolution of the market risk premium over the observation periods does not have a clear uptrend, nor is it seasonal, because there is no repeating period. Thus, we can use the exponential smoothing method to forecast the risk premium.

Table 4. Forecast of market risk premium from January 2016 to June 2022

Month	2016		2017		2018		2019		2020		2021		2022
	D_t	F_t	D_t	F_t	D_t	F_t	D_t	F_t	D_t	F_t	D_t	F_t	F_t

1	0,1597	-0,5370	-0,7021	-0,6323	-0,4973	-0,5201	-0,5931	-0,5115	-0,4750	-0,4681	-0,2935	-0,3869	-0,3228
2	-0,2179	-0,4130	-0,5768	-0,6447	-0,4777	-0,5160	-0,5550	-0,5260	-0,4548	-0,4693	-0,3220	-0,3703	-0,3342
3	-0,6881	-0,3783	-0,7077	-0,6327	-0,4338	-0,5092	-0,5328	-0,5312	-0,4674	-0,4668	-0,2940	-0,3617	-0,3436
4	-0,6887	-0,4334	-0,5716	-0,6460	-0,4604	-0,4958	-0,5406	-0,5314	-0,5042	-0,4669	-0,2760	-0,3496	-0,3513
5	-0,6397	-0,4788	-0,6549	-0,6328	-0,5067	-0,4895	-0,4333	-0,5331	-0,4345	-0,4735	-0,3158	-0,3365	-0,3576
6	-0,6048	-0,5075	-0,6071	-0,6367	-0,5766	-0,4925	-0,5359	-0,5153	0,3471	-0,4666	-0,3222	-0,3328	-0,3628
7	-0,4739	-0,5248	-0,4421	-0,6314	-0,4895	-0,5075	-0,3553	-0,5190	-0,3867	-0,3217	0,0567	-0,3309	
8	-0,6901	-0,5157	-0,4996	-0,5977	-0,5493	-0,5043	-0,4910	-0,4899	-0,4483	-0,3333	-0,3830	-0,2619	
9	-0,7309	-0,5468	-0,4026	-0,5803	-0,4840	-0,5123	-0,4200	-0,4901	-0,5076	-0,3538	-0,2903	-0,2835	
10	-0,7055	-0,5795	-0,4320	-0,5487	-0,6176	-0,5073	-0,4015	-0,4776	-0,4260	-0,3812	-0,2740	-0,2847	
11	-0,7537	-0,6020	-0,4158	-0,5279	-0,5357	-0,5269	-0,4606	-0,4641	-0,4151	-0,3891	-0,4300	-0,2828	
12	-0,6478	-0,6290	-0,5761	-0,5079	-0,4330	-0,5285	-0,4898	-0,4634	-0,3553	-0,3938	-0,3868	-0,3090	

Source: Author's calculation

After processing and calculating the data, we focus on the forecast level of the market risk premium in the first 6 months of 2022 of seafood enterprises' stocks. According to the forecast table above, the market risk premium tends to decrease, but the reduction is not really clear. Government bonds have more confidence in the eyes of investors, interest rates also increase, so the risk-free rate increases. This is also the cause of the decrease in the risk premium from the market.

- Forecast $M = R_i - R_f$

Table 5. Forecast the return of seafood companies' stock for the first 6 months of 2022

Time	HML	R_x	β	h	M	R_f	R_i
Jan-19	-0,008318938	-0,322843109	0,640098	-0,50606	-0,202441346	0,379300	0,176859
Feb-19	-0,00828237	-0,334224467	0,640098	-0,50606	-0,209745037	0,377541	0,167796
Mar-19	-0,008245839	-0,343579944	0,640098	-0,50606	-0,215751946	0,377027	0,161275
Apr-19	-0,008209344	-0,351270145	0,640098	-0,50606	-0,220692897	0,376877	0,156184
May-19	-0,008172885	-0,357591491	0,640098	-0,50606	-0,224757628	0,376833	0,152075
Jun-19	-0,008136463	-0,362787638	0,640098	-0,50606	-0,228102103	0,376820	0,148718

Source: Author's calculation

According to the above forecast table, we can see that the return of seafood enterprises' stocks is gradually decreasing. Therefore, if investors want to invest in seafood enterprises' stocks, they need to consider and consider carefully, to minimize risks.

5. Conclusion

With information on seafood companies listed on the stock market from January 2016 to December 2021, the results show that in Vietnam's seafood industry, due to a number of objective factors such as incomplete data, and financial statements, although the Fama-French model is appropriate, the degree of influence of the independent variables on the dependent variable is quite high (more than 66%). However, in the case of seafood companies as well as the Vietnamese stock market, it is still quite young, so we cannot prove the influence of company size on the return.

Through the research, investment recommendations are given to investors that they should invest in companies with a higher market-to-book value, with high growth potential, such that the level of return that they receive will be higher than if they invested in companies with higher book-to-market value.

In the seafood industry, the size of an enterprise has no effect on the return of the companies' stocks, so investors do not necessarily invest in small-scale enterprises but can invest. Investing in large-scale companies can also bring high returns.

But this is not the only criterion or factor that investors should consider before making a decision. Investors as well as investment enterprises should consider other factors such as the ability of the business to develop in the future, herd mentality, financial capacity, and alternative investment to make the most profitable decision.

References:

- [1] Tran Thi Hai Ly, How Fama-French 3-Factor Model Works in Vietnam Stock Market. *Economic Development Review*, 239 (2010), pp. 50-57.
- [2] Truong Dong Loc and Duong Thi Hoang Trang, Fama-French 3-factor model: Empirical evidence from Ho Chi Minh City Stock Exchange, *Can Tho University Journal of Science*, 32 (2014), 61-68.
- [3] Vo Hong Duc, Mai Duy Tan, Applying the 3-factor Fama-French model to Vietnam: A new approach to portfolio division, *Economic Development Journal*, 290, (2014), pages 18-30.
- [4] Vuong Duc Quan Hoang and Ho Thi Hue: An empirical study on the Vietnamese stock market, *Banking Review*, 22 (2008), pp. 38-45.
- [5] David E. Allen, Abhay Kumar Singh and Robert Powell (2009), *Asset Pricing, the Fama-French Factor Model and the Implications of Quantile Regression*

Analysis, Working Paper No.0911, Available at
SSRN:<http://ssrn.com/abstract=1460470>

[6] David E. Allen and Abhay Kumar Singh (2009), Minimizing Loss at Times of Financial Crisis: Quantile Regression as a Tool for Portfolio Investment Decisions, Working Paper No.0912, Available at SSRN:<http://ssrn.com/abstract=1967312>.

[7] Fama, Eugene F. and French, Kenneth R., 1992, The cross-section of expected stock returns., *Journal of Finance*, 47, pp. 427-465.

[8] Fama, Eugene F. and French, Kenneth R., 1993, Common risk factor in the returns on stocks and bonds, *Journal of Financial Economics*, 33 (1), pp 3-56.

[9] Katja Ignatieva & David Gallagher, Concentration and Stock Returns: Australian Evidence, and Management, *IPEDR* vol.2 (2011), IAC IT Press, Manila, Philippines, pp 55-60.

[10] Michael A. O'Brien, Fama and French Factors in Australia, Available at SSRN: <http://ssrn.com/abstract=458522>.

[11] Veysel Eraslan, Fama and French Three-Factor Model: Evidence from Istanbul Stock Exchange, *Business and Economics Research Journal*, Volume 4, Number 2, 2013, pp. 11-22.

[12] Robert F. Engle and Simone Manganelli (2004), Conditional Autoregressive Value at Risk by Regression Quantiles, *Journal of Business & Economic Statistics*, Vol. 22, No. 4, pp. 367-381.

[13] Roger Koenker and Gilbert Bassett, Jr. (1978), Regression Quantiles, *Econometrica*, Vol. 46, No. 1, pp. 33-50.

[14] Rawankar, Amol S., Gajanan A. Wagh, And Jayant S. Wadatkar. "DNA Barcoding And Phylogenetic Analysis Of *Tyto Alba*, *Otus Bakkamoena* And *Athene Brama* From Indian Subcontinent." *International J. Zoology And Res.(Ijzr)* 5 (2015): 7-14.

[15] Chander, Mukesh. "A Comparative Study Of Bioactive Molecules In Treatment And Control Of Cancer." *International Journal Of Mechanical And Production Engineering Research And Development (Ijimperd)* 10.3 (2020): 10499-10514.

[16] Tran, Pham Gia, And Nguyen Thi Phuong Chau. "Motivation Of Farmers On The Third Rice Crop Transformation In The Context Of Change Of Natural And Socio-Economic Characteristics—Case Study In An Giang Province—Mekong Delta-Vietnam."

[17] Hasan, Mohammad Tariq, Et Al. "The Moderating Role Of Audit Quality On

The Relationship Between Ifrs Adoption And Earnings Management: Evidence From Bangladesh." *International Journal Of Mechanical And Production Engineering Research And Development (Ijimperd)* 10.03 (2020): 9141-9154.

[18] Ashraf, Yasir. "Is Reva A Better Predictor Of Shareholders' value? A Study Of Pakistani Listed Cement Companies." *International Journal Of Economics* 8 (2018): 1-22.

[19] Trang, Ngothith. "The Fourth Industrial Revolution And Its Impact On The Field Of Industrial Design." *International Journal Of Civil, Structural, Environmental And Infrastructure Engineering Research And Development (Ijcseierd)* 9.3 (2019): 29 38.