

The Fama-French five-factor model and the US-China trade war: An empirical investigation of the Indonesia, US, and China stock market

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ABSTRACT

Despite numerous studies of the US and China trade war effect being published over the last seven years, this topic has remained equivocal. The portfolio formation model that underlies the arbitrage pricing theory is still relatively small, especially for the portfolio performance of the Fama-French five factors (5FF) model that examines the global economic crisis. Focusing on the trade war year, the study aims to examine the effect of accounting information on portfolio performance by using the 5FF model. This study employs a dummy panel least square regression model, the data are analyzed from Indonesia, US, and China stock markets with 864 portfolio monthly combinations ranging from 2016 to 2019. The result of the study shows that the US-China trade war strengthens the beneficial impact of market risk on portfolio performance in the Indonesian Stock Exchange. On the other hand, the war has no impact on the relationship between market risk and the performance of a portfolio of US stocks. However, it lowered the beneficial impact of size on portfolio performance for both the US and China stock markets. The robust 5FF of accounting information within the study is size and investment. According to the study, systematic risk and idiosyncratic risk should be given more consideration by both investors and companies to prevent unneeded economic losses and manage the risk that could have a greater impact on the stock market.

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Introduction

The latest study by Fama & French (2017) introduces a five-factor model (5FF) by adding profitability and investment factors that focus on accounting information. The results of this study are supported by Cooper et al. (2008) and Novy-Marx (2013), which give evidence of the effect of profitability and investment on asset returns. Brailsford et al. (2012) show that the 3FF model is unable to explain time-series variations in portfolio returns. It is the reason that 5FF is used more often nowadays. The 5FF model has been tested for its performance in times of crisis by Lim et al. (2014), who found that during the 2008 crisis (Crisis 2), the small minus big (SMB) and high minus low (HML) factors had a negative effect on portfolio returns. Meanwhile, during the first crisis in 2007, SMB and HML had increased. This result is supported by Mouna & Anis (2016) and Tsai (2015), who provide evidence that the financial crisis impacts the excess return portfolio. The currency crisis condition worsened so it was found that the SMB, HML, and RMW (robust minus weak) factors decreased compared to the period before the currency crisis. The results are supported by Huang (2019) who found similar findings that investor behavior may change due to the financial crisis.

The America and China trade war that started in 2018 is an important economic event of this century. This tariff war had a broad impact, starting from the trade crisis and the stock market, thus affecting the world economy. The impact of the US-China trade war is felt in the US and Chinese stock markets and the stock markets of trading partners, including Indonesia. Considering these two countries are essential players in the global economy, it is understandable to possess large capitalizations and investments in many countries. Natalia (2020) presents evidence that the three capital markets have a cointegration effect during the US-China trade war because the capital market becomes more integrated in times of crisis. Movements in foreign stock exchange indices affect the prediction of domestic stock indices.

Three main reasons make this topic interesting; first, the portfolio formation model that underlies the arbitrage pricing (APT) theory is still relatively small, especially for the portfolio performance of the 5FF model. Second, this study applies the 5FF portfolio performance model to the economic crisis that started from the US-China trade war. Third, this study uses a multi-country approach that connects three capital markets, namely the Indonesian stock market (LQ-45), America (DJI-30), and China (SSE-50). The selection of LQ-45, DJI-30, and SSE-50 is due to representing good-performing stocks with large market capitalization and position as the most liquid stocks with several active stock transactions in

the capital market. This study contributes to developing financial accounting theory, modern portfolio theory, and the economic crisis.

Literature Review

Fama-French Five-Factor Model (5FF) in Crisis Period

Fama & French (2015) refined their model to 5FF by adding two accounting information from the 3FF model: profitability and investment. This improvement is motivated because much evidence shows that the 3FF model can no longer fully explain the variation in returns related to these two factors. Hou et al. (2014) and Novy-Marx (2013) found profitability to explain portfolio returns significantly. Further studies by Chiah et al. (2016) and Wijaya et al. (2017) compared the 3FF model with the 5FF model, and the results indicate that the adjusted RSQ of the 5FF model was higher than the 3FF, which means the 5FF model has a superior yield prediction capability.

The evidence of the 5FF model in crisis was carried out by Lim et al. (2014). He found that during the 2008 crisis (Crisis 2), the SMB and HML factors had a negative effect on portfolio returns. Meanwhile, during the first economic crisis in 2007, it implied that the standard deviation of SMB and HML had increased. This result is supported by Mouna & Anis (2016) and Tsai (2015) that the financial crisis impacted portfolio returns, namely excess returns after the currency crisis worsened. Similarly, Huang (2019) found that investor behavior changed due to the financial crisis. Then, it can be concluded that crisis conditions influence portfolio returns and may even lead to a decline in portfolio performance.

Market Risk and Portfolio Performance

Based on Fama & French (2015, 2017), Chai et al. (2019), and Wijaya et al. (2017), market risk and excess return portfolio have a significant positive effect, meaning that when market risk increases, returns also increase. Other researchers, Chai et al. (2019), Huang, (2019), and Huynh & Smith (2017) found the same thing, they are argues that market risk related to changes in the market will affect the variability of returns. The greater the beta, the higher the volatility of the stock or the more sensitive it is to the market. When the 2008 crisis hit America, this crisis impacted the Indonesian capital market as indicated by a significant fall in Indonesian stocks. Meanwhile, in the last period, the factor that most affected the global economy and stock prices was the US-China trade war Da Costa & Sukartha (2020). When the US and China raised import tariffs on each other, Indonesia's composite and the LQ45 index weakened. However, after the US-China trade war

negotiations went well, Indonesia's composite and the LQ-45 index rose 1.26%. So, increasing tariffs by the US and Chinese governments impacts Indonesia's weakening of the stock market. The increasing pressure from the US-China trade war is also very detrimental to the two countries, including stock price fluctuations, namely the decline in the DJI-30 and SSE-50 indexes (Öztürk & Altinöz, 2019). Therefore, the US-China trade war has increased market risk in the Indonesian, US, and Chinese capital markets. It causes investors to carry out efficient portfolio formation strategies to obtain satisfactory returns. As with the global economic crisis in 1998 and the 2007 exchange rate crisis, Lim et al. (2014) found the same result. Thus, the US-China trade war event increases the positive influence of market risk on yields.

H₁: US-China trade war strengthens the positive influence of market risk on portfolio performance

Size and Portfolio Performance

Singh & Yadav (2015) found that small-sized companies tend to be riskier than large ones. According to the concept of risk and return, a company with a small size has a higher return, and vice versa (Yang et al., 2017). Wijaya et al. (2017) show that companies with small market capitalization have a greater risk of growth than those with a greater rate of return, supported by Wijaya et al. (2017). Lim et al. (2014) also examine the impact of the global financial crisis on the Fama-French portfolio, and the results find that the 2007-2008 crisis caused the SMB standard deviation to increase significantly, accompanied by a significant decrease in returns.

During the US-China World War, the US and Chinese capital markets experienced a decline in the DJI-30 and SSE-50 indexes, which affected Indonesia's stock exchange performance, so the LQ-45 index also fell. During the crisis due to the US-China trade war, it turned out that stock prices that experienced a very significant decline were dominated by small companies, including DJI-30 (Garret et al., 2004), SSE-50 (Guo et al., 2017), and LQ-45 (Gupta & Agarwal, 2011). Armstrong et al. (2010), Lim et al. (2014), and Yang et al. (2017) found that during the crisis, there was a shift in risk from developing markets to emerging markets. Based on the conditions during the US-China trade war, it can be seen that companies with large market capitalization are still able to maintain yields compared to companies with small sizes. Öztürk & Altinöz (2019) showed that the trade war crisis continued with the covid pandemic causing a market reaction. It was found that companies with high market capitalization and conservative investment patterns were able to survive and

develop a good form of service diversification. The market reaction supports stocks with large market capitalizations because the financial crisis triggers changes in investor behavior to choose stable, mature stocks over growth stocks, so market incentives apply to large-cap stocks. This condition is consistent with the findings of Lim et al. (2014) who applied the 5FF model during the first and second financial crisis conditions.

H₂: US-China trade war weakens the positive effect of size on portfolio performance

Book to Market and Portfolio Performance

Chiah et al. (2016) explained in the valuation theory that stock returns depend on one of them the book-to-market. The higher book-to-market ratio has an impact on expectations of higher returns. On the Shanghai stock exchange, it was found that a high book-to-market ratio resulted in better returns, and this condition was able to survive even in times of crisis (Guo et al., 2017). Chai et al. (2019) and Lim et al. (2014) prove that the 2007-2008 crisis caused the standard deviation of HML to increase quite significantly, accompanied by a significant increase in returns. Market incentives for stocks with high fundamental values still apply during the crisis. Investors' fear of economic uncertainty due to the US-China trade war crisis caused investors to choose undervalued stocks that provide a sense of security. Studies from Da Costa & Sukartha (2020) show that the US-China trade war event has information on the performance of the stock exchanges in the three countries. The US-China trade war event was responded to by a decrease in market value, so the book-to-market ratio rose. Da Costa & Sukartha (2020) also found differences in market reactions from the beginning of the US-China trade war to the US-China trade war peace talks. Book to market tends to increase at the beginning of the trade war and gradually returns to normal during peace talks. The results of the research during the crisis are supported by Guo et al. (2017) in Shanghai and Hong Kong, Chai et al. (2019) and Lim et al. (2014) in America, and Indonesia by Wahyudhi & Agung Suaryana (2019).

H₃: US-China trade war strengthens the positive effect of book-to-market on portfolio performance

Profitability and Portfolio Performance

The profitability factor is one of the most robust factors used as a predictor for portfolio performance using the 5FF model. Companies with strong profitability are crisis-resistant in the face of events that shake the capital market compared to those vulnerable on the profit side (Kasmianti & Santosa, 2019). The profit signal has an information content position that is

strongly perceived by investors (Bouzgarrou et al., 2018). A good level of profitability has a solid foundation to continue to have growth opportunities in crises. It was found by Chai et al. (2019), Da Costa & Sukartha (2020), and Lim et al. (2014) during a crisis; profitability continues to make a significant contribution to the 5 FF portfolio model. Therefore, the impact of the trade war enhances the relationship between profitability and returns because, in times of crisis, investor confidence in companies with high returns is stronger than in companies experiencing losses.

H₄: US-China trade war strengthens the positive influence of profitability on portfolio performance

Investment and Portfolio Performance

The impact of the crisis on portfolio performance by Lim et al. (2014) during the 1998 and 2018 global financial crises showed that the CMA (conservatism minus aggressive) coefficient was significantly positive for portfolio returns that exceeded the risk-free interest rate in the US stock exchange of the t-bill rate. It is supported by Öztürk & Altinöz (2019) that in the Shanghai and Hong Kong exchanges, companies with high investment values come from mature and conservative companies with stable investment opportunities. He et al. (2020), Kim et al. (2021), and Lau (2020) show that the US-China trade war crisis caused a market reaction, where companies with conservative investment patterns were able to survive and develop a good form of service diversification. Da Costa & Sukartha (2020) shows that the US-China trade war has different sensitivities in the stock market, especially in the US-China and Indonesian stock exchanges, which have trade relations with the two countries.

The SSE-50 has a significant value in terms of portfolio performance using the 5FF model, including the CMA factor as an investment proxy (Guo et al., 2017). Moreover, Hou et al. (2014) found a significant reaction to the US-China trade war policy towards capital market players in the preparation of portfolios who chose a conservative strategy in investing. Investors' reaction to the crisis causes it, commonly referred to as the “fear factor”, when facing these changes. This fear causes investors' expectations of risk, where investors tend to avoid risk so that they behave more carefully and like conservative large-cap mature stocks. This result is consistent with previous research that proves that investment positively affects portfolio performance when the global financial crisis hits the world capital market.

H₅: US-China trade war strengthens the positive influence of investment on portfolio performance

Methods

The sample criteria have the characteristics of (1) being recorded in LQ-45, DJI-30, and SSE-50 for the 2016-2019 periods; (2) having complete data related to the variables studied for the 2016-2019 period; and (3) there being no negative equity value during the 2016-2019 periods. The research sample that meets the criteria for each exchange is 864 monthly portfolios. The data used in this study were obtained through data published on the Bank Indonesia website (www.bi.go.id) and financial reports published by IDX (www.idx.co.id) and Thomson Reuters Refinitiv Eikon. Table 1 shows the detailed selection process.

Table 1. Selection Procedure for The Final Sample

Selection Procedure	Amount
Companies listed on LQ-45, DJI-30, and SSE-50 during the 2016-2019 periods.	375
Companies listed on LQ-45, DJI-30, and SSE-50 during the 2016-2019 periods have complete data related to the variables studied.	371
Companies that did not have negative equity value during the 2016-2019 periods.	365
Number of sample(s)	365

In this study, the rate of return on shares obtained by investors based on the monthly closing price, obtained from the natural logarithm (\ln) closing price of shares today (t) divided by the closing price of shares yesterday ($t-1$). Thus, compensation is given for the market risk faced by investors, measured based on the premium value of the difference between the market rate of return and the risk-free rate of return. In addition, the market capitalization size obtained from the closing share price multiplied by the number of shares outstanding, proxied by small minus big (SMB). The portfolio itself is divided into large (B) and small (S) companies. The ratio of book equity to market value (BE/ME), which is calculated by the value of equity divided by market capitalization using the high minus low (HML) proxy, is classified as high (H), neutral (N), and low (L). Lastly, profitability is measured by return on equity (ROE), namely profit before tax divided by total company equity, proxied as robust minus weak (RMW), robust (R), neutral (N), and weak (W), investment growth rate explained by the number of total assets of the company divided by total company assets last year which is proxied as conservative minus aggressive (CMA), which is classified as conservative (C), neutral (N), and aggressive (A). In the form of dummy numbers, the US-China trade war moderating variable is the period before the trade

war (2016-2017) = 0, otherwise 1. The data processing method uses a dummy panel least square regression analysis that fulfills the classical assumption test for the Best Linear Unbiased Estimator (BLUE) requirements: data normality, multicollinearity, autocorrelation, and heteroscedasticity tests.

$$R_{it} - R_{ft} = \alpha + \beta_{it1} (R_{mt} - R_{ft}) + \beta_{it2} (SMB_t) + \beta_{it3} (HML_t) + \beta_{it4} (RMW_t) + \beta_{it5} (CMA_t) + \beta_{it6} PD_{i,t} + \beta_{it7} PD_{i,t} (R_{mt} - R_{ft}) + \beta_{it8} PD_{i,t} (SMB_t) + \beta_{it9} PD_{i,t} (HML_t) + \beta_{it10} PD_{i,t} (RMW_t) + \beta_{it11} PD_{i,t} (CMA_t) + \varepsilon_t \quad (1)$$

Where:

- R_{it} = Realized return from stock i period t;
- R_{ft} = Return on risk-free assets period t
- R_{mt} = Market yield period t
- α = Constants
- SMB_t = Small minus big firm yield difference in period t
- HML_t = The difference between high book-to-market equity minus low book-to-market equity period t
- RMW_t = The difference between robust profitability minus low weak profitability period t
- CMA_t = The difference between conservative minus aggressive investment period t
- $PD_{i,t}$ = Dummy trade war US-China, period before trade war US-China (=0), period trade war US-China (=1)
- $\beta_{it 1,2,3,..}$ = Regression coefficient (gradient)
- ε_t = Residual

Result and Discussion

In the US Stock Exchange (DJI-30) the interaction of the trade war has a significant negative effect between MRP and ERP, where the magnitude of the negative effect is stronger during the trade war, meaning that there is a very sharp decline in ERP during the trade war period to almost four times (400%). It shows that the impact of the trade war is very sensitive on the US stock exchange (DJI-30) especially when the decline in portfolio performance (due to the increase in MRP) causes a significant weakening of the relationship. Following previous studies by Da Costa & Sukartha (2020) and Öztürk & Altinöz (2019), when the US stock market crisis weakened the high market risk worsened yields. Empirical data shows the DJI-30 corrected 2.3% to 23,932, where Boeing and Caterpillar weakened the most due to trade war maneuvers. In Indonesia, the trade war stimulates the relationship between risk and portfolio performance. It means that a trade war improves the risk of Indonesian stocks and produces higher expected returns. The stock exchange in Shanghai (SSE-50), the trade war has an impact that strengthens the significant positive effect of MRP

on ERP. The Shanghai Stock Exchange, the largest capitalized exchange in China, can quickly overcome the impact of the trade war. It is in line with the findings of Chai et al., (2019) and Huang (2019), which prove that the Shanghai stock exchange during the US-China trade war had the most significant response so that positive returns were obtained.

Tables 2 and 3 shows that in Indonesia, the trade war not only affected small business, but also some of the most influential firms within the sector. The US Stock Exchange (DJI-30), when trade war portfolio performance increased, companies with large capitalization could still maintain their yield performance compared to small-size companies. He et al. (2020), Kim et al. (2021), and Lau (2020) show that the trade war crisis continues, the covid pandemic crisis has caused a market reaction, where high market capitalization companies with conservative investment patterns can survive and develop forms of diversification. It is formed because the market reaction supports stocks with large market capitalization due to the financial crisis triggering changes in investor behavior who choose stable, mature stocks over growth stocks, so market incentives apply to large-cap stocks. Large-capitalization companies dominate the increase in portfolio returns. The Shanghai stock exchange test results (SSE-50) show the same direction as the US stock exchange (DJI-30), when the trade war is significantly negative (Brailsford et al., 2012; Chiah et al., 2016). The similarity of these results is understandable because a trade war involves the two countries directly to feel the greatest impact. In crisis conditions, large-cap stocks gain profits, so size negatively affects ERP (Öztürk & Altinöz, 2019).

Regarding the effect of the book to market (HML) on the excess of return portfolio, in the Indonesia Stock Exchange (LQ-45), a book to market (HML) has no significant effect. It indicates that accounting information reflected from the book to market does not contribute to forming an optimal portfolio in Indonesia. It could be due to high information asymmetry (Sutapa & Suputra, 2016), so the book value cannot be communicated transparently to external parties or investors, and the trade war is not able to close the gap between book and market value. As an emerging market, the Indonesian capital market is a lower market capitalization than the Chinese and US stock market. resulting in thin trading transactions. Asymmetric information in emerging markets is still high and companies are always considered to know more about their value Lambert et al. (2012). Market efficiency in Indonesia is categorized as weak, which often results in the low practice of fair stock valuation (Yulianti & Jayanti, 2020). It could be argued that undervalued shares in the Indonesian stock exchange have not provided certainty whether the shares can be categorized as cheap stocks. Moreover, during the trade war, there was a significant increase in portfolio

performance on the US Stock Exchange (DJI-30). It gives evidence that a trade war positively impacts the performance of portfolio returns. It is in line with Chiah et al. (2016) and Da Costa & Sukartha (2020) that companies with high book-to-market ratios tend to be undervalued so that in the long term, they will provide high excess returns. The international 5FF model (2016, 2017) in several countries concludes that the book-to-market is a factor that can explain returns depending on the country and period studied. Chiah et al. (2016) explicitly examined the impact of the global financial crisis and the results prove that HML increases are accompanied by increased returns. Similar results by Lim et al. (2014) where market incentives for stocks with high fundamental values still occur during the crisis period. It is influenced by investor fear due to economic uncertainty due to the trade war crisis, so they prefer to choose undervalued stocks for security.

Table 2. Regression Results

Variable(s)	Model 1 (LQ-45)		Model 2 (DJI-30)		Model 3 (SSE-50)	
	Coefficient	Sig.	Coefficient	Sig.	Coefficient	Sig.
Constants	0.006	0.030	0.043	0.011	0.079	0.000
R _m -R _f	0.006	0.153	-0.782	0.046	-1.572	0.000
SMB	0.042	0.551	0.542	0.000	1.010	0.000
HML	0.098	0.104	-0.024	0.877	-0.460	0.000
RMW	-0.137	0.197	0.025	0.843	0.341	0.002
CMA	0.140	0.143	-0.157	0.036	0.540	0.000
PD	-0.006	0.097	0.164	0.000	-0.062	0.028
PD_R _m -R _f	0.957	0.000	-3.917	0.000	1.067	0.047
PD_SMB	0.183	0.040	-1.289	0.000	-0.634	0.000
PD_HML	-0.112	0.143	1.943	0.000	0.309	0.024
PD_RMW	0.153	0.255	1.606	0.000	0.131	0.470
PD_CMA	-0.275	0.010	0.271	0.013	-0.480	0.006
Adj. R ²	0.319		0.219		0.374	
F-Stats	0.000		0.000		0.000	

Table 3. Hypothesis Decision

Hypothesis	LQ-45	DJI-30	SSE-50
H ₁ : US-China trade war strengthens the positive influence of market risk on portfolio performance	Accepted	Rejected	Accepted
H ₂ : US-China trade war weakens the positive effect of size on portfolio performance	Rejected	Accepted	Accepted
H ₃ : US-China trade war strengthens the positive effect of book-to-market on portfolio performance	Rejected	Accepted	Accepted
H ₄ : US-China trade war strengthens the positive influence of profitability on portfolio performance	Rejected	Accepted	Rejected
H ₅ : US-China trade war strengthens the positive influence of investment on portfolio performance	Rejected	Accepted	Rejected

In the stock exchange in Shanghai (SSE-50), trade war interactions strengthen the significant positive relationship between book-to-market (HML) and ERP. Trade war benefits the Shanghai stock exchange through book-to-market (HML) accounting information by increasing portfolio returns. In the Shanghai stock exchange, evidence was found that companies with higher book-to-market value ratios received better returns than firms with lower book-to-market value ratios (Guo et al., 2017; Lim et al., 2014), where this condition can survive even in times of crisis. Market incentives for stocks with high fundamental values still occur during the crisis period. They show the crisis period in the Shanghai stock exchange; they also found the same results in the Hong Kong stock exchange. During the crisis caused by the US-China trade war, this event was responded to by a decrease in market value so that the book-to-market value ratio rose. The results of Da Costa & Sukartha (2020) research found differences in market reactions from the beginning of the US and China trade war to the US and China trade war peace talks, where book-to-market tends to increase at the beginning of the trade war and gradually returns to normal during the China peace talks.

Furthermore, the Indonesian stock exchange (LQ-45) shows that before and during the trade war profitability (RMW) is insignificant to the excess return portfolio. In the Indonesian

stock exchange, it was found that accounting information reflected in profitability does not contribute to the formation of an optimal stock portfolio because it tends to be dominated by irrational investors. Trade war decreases the earnings response coefficient (ERC) of Indonesian firms. Thus, the pattern of investment decision-making is not based on the company's profitability but is more influenced by various rumors or trading noise and bandwagon (Yurttadur & Ozcelik, 2019). On the US Stock Exchange (DJI-30), trade war interaction shows that profitability (RMW) positively affects ERP. In this case, the impact of the trade war benefits the stock portfolio's performance, namely a significant increase in yield due to the positive influence of profitability. Companies with strong profitability are crisis resistant when faced with events that shake the capital market compared to those vulnerable from the profit side (Agustina et al., 2021; Chiah et al., 2016; Kasmiati & Santosa, 2019). The level of profitability makes the company still have the opportunity to grow even in crises because the company develops risk management and adaptation strategies to market changes well and quickly. During a crisis, profitability significantly contributes to the 5FF portfolio model. Therefore, the impact of the trade war will increase the relationship between the company's profitability and returns, because in times of crisis, investor confidence in companies with high profitability is stronger than those that suffer losses. On the other hand, before the US and China trade war or during the trade war, RMW positively affected ERP in the Shanghai stock exchange (SSE-50). However, this result was only significant before the trade war. In line with Guo et al. (2017) and Huynh & Smith (2017), profit increases ERP significantly only occur in normal periods.

Finally, the effect of investment (CMA) on the excess of return portfolio presented in Table 2 also shows that portfolio performance in the Indonesian stock exchange (LQ-45) decreases significantly when there is an interaction between trade wars, namely investment (CMA). It means that a trade war causes losses to portfolio performance due to a weakening of the investment returns made by companies, especially investments with a conservative pattern. Investors are likely increasingly reluctant to face risks in uncertain trade war situations, thus preferring assets at lower risk than investing in stocks, so there may be a decision to sell stocks at low prices due to the "fear factor". As a trading partner of America and China, Indonesia is constrained in goods subject to a tariff war between the US and China. It has a major impact on companies that invest in high-risk. The result is supported by Chen & Zhang (2018), who found that in times of crisis, conservative investment reduced portfolio returns, in other words, an aggressive pattern, although it contains high financial risk, promises a fairly high return as well. In addition, companies with conservative

investment values tend to reduce dividend payments during the trade war period. At the same time, most investors in crisis times want dividends to be paid as current income and consider additional capital for investment reserves inappropriate in times of crisis. It is in line with the statement of Bouzgarrou et al. (2018), which proves that in times of crisis, there is an opportunity for investors who have strong funding to aggressively pursue profitable investment opportunities because stock prices on the exchange tend to weaken to a certain point. Thus, aggressive expansion in times of crisis can benefit portfolio returns in the future.

In the US Stock Exchange (DJI-30), it can be seen that when a conservative investment pattern trade war can increase ERP significantly, it means that the conservative pattern can survive to improve portfolio performance. Aggressive investments with high risks sharply decline returns, so the impact of the trade war will reduce portfolio returns for aggressive investments. It is supported by Chai et al. (2019) and Jareño et al. (2020), which state that companies with conservative investment characteristics will provide higher returns than aggressive investments. In general, conservative investment companies pay higher dividends to give a positive signal to investors; on the other hand, aggressive investment tends to reduce dividends to strengthen investment reserves. The impact of the crisis on portfolio performance using the 5FF model has been studied by several researchers during the 1998 and 2018 global financial crises. The results show that the CMA coefficient is significantly positive for portfolio returns that exceed the risk-free interest rate of the T-bill rate (Yang et al., 2017). Companies with high investment value come from mature, conservative companies with stable investment opportunities. Contrary, when the conservative pattern of the trade war was unable to improve portfolio performance in the Shanghai stock exchange (SSE-50), in other words, an aggressive strategy was more promising for a return. Even though the risk is higher, the expectation of the return is increasing (Chai et al., 2019; Jareño et al., 2020).

Conclusion and Suggestion

The result of the study shows that the US-China trade war strengthens the beneficial impact of market risk on portfolio performance on the Indonesian stock exchange. On the other hand, the war has no impact on the relationship between market risk and the performance of a portfolio of US stocks. The US-China trade conflict lowers the beneficial impact of portfolio size on performance in the US and Chinese stock markets. The robust 5FF accounting information within the study is size and investment. To develop our study, multi-countries analysis with more countries can be expanded to understand risk shifting in more

complex worlds, either in developing or developed markets. Secondly, adding GDP or macro indicators will help evaluate the impact of the US-China trade war on certain countries. Lastly, externality issues based on affiliated countries should be analyzed. The risk of firms in countries with more transactions with the US or China should be examined after a trade war.

Author contributions

Irenna Elizabeth had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis, Dedhy Sulistiawan had responsibility to ensure the quality conceptual framework design and the proper measurement of statistical data analysis, Adriana Grigorescu contributes in sharpening qualitative analysis and insight.

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