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**Article**

## Risk and returns of different foreign ownership portfolios: Evidence from Vietnam stock market

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## FINANCIAL ECONOMICS | RESEARCH ARTICLE

# Risk and returns of different foreign ownership portfolios: Evidence from Vietnam stock market

Anh Phong Nguyen<sup>1\*</sup>, Hoang Anh Nguyen<sup>1</sup>, Thi Hong Minh Ho<sup>1</sup> and Phu Thanh Ngo<sup>1</sup>

**Abstract:** This study aims at assessing the risk–return profile of stock portfolios by different levels of the foreign ownership ratio. The paper also evaluates the performance of portfolios by their size and the book-to-market ratio (BTM). In this study, we apply GMM approach with the data computed from stock-related database in Ho Chi Minh Stock Exchange and Ha Noi Stock Exchange for the period 2010–2017. Our findings reveal a pronounced foreign ownership impact, whereby the increase in the foreign ownership ratio results in the upturn in stocks’ liquidity, return and size but also brings about the higher risk for stocks. In addition, our empirical analyses indicate that the portfolios with the foreign ownership ratio falling either to the bottom 20% or to the top 20% outperform other portfolios

**Subjects:** Corporate Finance; Credit & Credit Institutions; Investment & Securities; Risk Management

**Keywords:** Foreign ownership; pricing model; risk and return of stock portfolio  
**Subjects:** C58; E22; G12; G38

### 1. Introduction

A fundamental problem in both academic finance and investment world is the risk–return relationship. If we are willing to take a high level of risk, does it guarantee a high return? In turn, is a high



Anh Phong Nguyen

### ABOUT THE AUTHOR

Anh Phong Nguyen Our research team comprises academic staffs from the University of Economics and Law – Vietnam National University. Phong A. Nguyen, the leader of the project, conceived of the presented idea, designed the model and the research framework. Thanh P. Ngo collected data and performed the calculations. Anh H. Nguyen and Minh H. Nguyen conducted literature review and wrote the manuscript with input from all authors. Phong A. Nguyen, Anh H. Nguyen and Thanh P. Ngo contributed to the interpretation of the results. All authors discussed the results and commented on the manuscript. The work presented in this paper was part of our ongoing research that aimed to evaluate the impact of removing restrictions on foreign ownership of Vietnam listed companies according to Decree No. 60/2015/ND-CP.

### PUBLIC INTEREST STATEMENT

Vietnam has been one of the most attractive emerging markets after the Vietnamese government lifted the foreign ownership ratio ceiling in unconditional business fields. The presence of foreign investors could help to improve firms’ value and performance thanks to their contributions regarding corporate governance support and human resource training. Therefore, foreign ownership could affect the stock’s return and stock price’s volatility or risk. This study investigates the impact of foreign ownership on stocks’ return and risk by separating stocks into different portfolios which is based on different degree of foreign ownership ratio. The results suggest that investors should consider portfolios with the lowest or highest level of foreign ownership since they generate higher return and lower risk than other portfolios. The study also provides implications for market regulators and firm managers to realize effects of foreign investors at either firm or country level and further enhance transparency and the publicity of information to attract more external funds.

return always associated with a high level of risk? These questions are essential in choosing assets and building an investment portfolio; thus, a considerable amount of literature has been published on asset pricing models to examine risk–return relationship since the 1970s. In general, there are three different research approaches on this topic. Regarding the first approach which is typically represented by Fama–French’s studies (Fama & French, 1992, 1993, 1996, 1998), factors describing “value premium” and “size premium” are considered to be the most significant factors, outside of the market risk, to explain the realized returns of publicly traded stocks. With respect to the second approach, several researchers like Daniel and Titman (1997) argue that a stock’s expected return seems to be determined more by its characteristics, such as behavioral biases or liquidity, than by its return pattern as Fama–French suggested. Alternatively, they support “characteristic model” in which expected returns are not linked to common variation in the returns. For the third approach, several studies decompose stock returns into different portfolios according to ownership structure or investment structure and examine the effect of common ownership on stock price movement (Antón & Polk, 2014; Bartram, Griffin, Lim, & David, 2015).

Regarding the impact of ownership structure, many scholars put their attention on the effect of foreign ownership towards stock return volatility, especially in emerging markets. However, researchers have gained no consensus as to whether foreign capital strengthens or weakens local stock markets. Lots of publications claim that the presence of foreign investors (particularly large foreign investors) in emerging stock markets not only improves the firm’s valuation and operating performance but also reduces the capital expenditure and risk of exposure of listed firms (Ferreira & Matos, 2008; Gillan & Starks, 2003; Huang & Shiu, 2009b; Li, Nguyen, Pham, & Wei, 2011; Mitton, 2006). Gillan and Starks (2003) document that large shareholder institutions offer the monitoring support and human resource training for increasing firm management. By the same token, Mitton (2006) shows that stock companies which are open to foreign investors have higher growth, lower risk and greater profitability. Ferreira and Matos (2008) show that when foreign institutions involve in emerging stock markets, they enhance the value of shares, support the performance of operating systems and cut down the cost of capital. Huang and Shiu (2009b) find that foreign institutional equity ownership is significantly associated with increased firm R&D expenditures and also with improved firm performance. Similarly, Li et al. (2011) confirm that large foreign owners in emerging markets represent improved corporate governance and monitoring, which lowers volatility. Foreign ownership, especially large and institutional foreign ownership, requires high information quality and greater transparency. Therefore, less risky companies in domestic stock markets stabilize the return volatility.

On the other hand, the opponents of foreign capital argue that the capital from international investors brings global risk to the local stock market and leads to vulnerability of the domestic market, especially for premature financial markets (Stiglitz, 2000). Moreover, foreign capital could contribute to the local stock market’s destabilization due to short-term speculative behaviors (Bae, Chan, & Ng, 2004; Stiglitz, 2000). Since evidence on the impact of foreign ownership is mixed, further investigation is largely needed to investigate how foreign ownership and its changes affect the stock return volatility in a developing country like Vietnam.

In addition, to the authors’ best knowledge, very few publications are available in the literature that address the issue of foreign ownership effect on the fluctuations in different stock portfolios’ return by applying pricing models. For instance, Bartram et al. (2015) find that the linkages between domestic and foreign stocks due to common institutional ownership can explain substantial return variation beyond industry and country factors. The study of Ceylan, Dogan, and HakanBerument (2015) extend the original Fama–French three-factor asset pricing model by adding a foreign portfolio preference proxy as a fourth factor to explain the return variation of a given portfolio on the Borsa Istanbul stock market. Huang and Shiu (2009a) examine foreign ownership in Taiwan’s stock market to interpret international portfolio selection. It could be said that empirical studies on the risk–return profile of stock portfolios which are classified based on different levels of the foreign ownership ratio in a frontier market like Vietnam stock market is quite limited.

Vietnam stock market signifies an exciting case. Though Vietnam initiates the stock market later than many other developed countries, there has been a substantial growth. The first stock exchange was established in 2000 with four listed companies. Increased foreign interest and the privatization of state-owned enterprises leads to a rapid increase in listings. After 17 years of establishment and development, there are about 731 firms listed on Vietnam stock exchange. Nevertheless, in comparison with other countries, Vietnam stock market is still a small frontier market with limited liquidity. Especially, the market depends highly on institutional investors and foreign investors. For a long time, Viet Nam imposed restrictions on foreign ownership in domestically listed firms: up to 49% of the equity for the listed companies and up to 30% for the listed banks. However, the Decree No. 60/2015/NĐ-CP<sup>1</sup> which was promulgated by the government in 2015 has allowed firms except for certain cases to be held by foreign investors up to 100%. Scrapping the cap of foreign ownership could have a positive impact on increasing liquidity for the market, attracting new investment capital to expand the business scales... However, it also may create risk for the market, i.e. if the market has shocks, for instance, foreign investors may withdraw their capital, causing huge risk to investors as well as destabilizing the macro economy. Since foreign investors in Vietnam stock market have played an increasingly important role thanks to Decree 60, their impact on stock prices are becoming the interesting subject for research.

Our study makes several contributions to the management and investment literature. In the first place, the study investigates whether the change in foreign ownership restriction has positive or negative impact on stock risk and return if investors invest in portfolios with different foreign ownership ratios after 2 years of amendment on foreign ownership ratios, according to Decree 60. Based on our findings, some specific recommendations can be made to help investors create their investment strategy as well as to urge listed firms to decide their own foreign ownership limit under Decree 60. Accordingly, attracting more foreign capital resources and improving liquidity for the market will give Vietnam stock market a chance to raise its status from a frontier market to an emerging market. Second, our study is also different from several previous researches which assess the application of Fama–French three-factor-models (FF3) in Vietnam stock market in respect of the research approach. In lieu of employing a detailed dataset of foreign ownership and firm characteristics corresponding to each stock, in other words considering the entire stock market as a portfolio, our study aims to assess stock risk and return by separating stocks into different portfolios on the basis of variant foreign ownership ratio.

The remainder of this paper is organized as follows. Section 2 outlines theories and typically related studies. Section 3 discusses the research methodology. Empirical results are presented in Section 4. Section 5 concludes the paper.

## 2. Literature review on multifactor asset pricing models

The purpose of asset pricing theory is to understand the prices or returns of financial instruments such as stocks, bonds, options, etc., to uncertain payments. The most important factor in the valuation is the risk of payments of the asset under examination. The capital asset pricing model (CAPM) developed by Lintner (1964) and Sharpe (1964) marks the birth of asset pricing theory. The CAPM explains the trade-off between assets' returns and their risks, measuring the risk of an asset as the covariance of its returns with returns on the overall market.

There have been numerous empirical tests of CAPM. Many of them conclude that the CAPM does not work well in practice because the CAPM leaves a lot of the variation in average returns unexplained. Specifically, the market factor does not capture all the relevant risks associated with asset returns (Banz, 1981; Basu, 1983; Fama & French, 1992, 2004). For instance, the study of Banz (1981) is the first evidence-based work that examines the empirical relationship between the return and the total market value of NYSE common stocks. It is found that smaller firms have had higher risk adjusted returns than larger firms. The author then concludes that this “size effect” is an evidence that the CAPM is misspecified. Basu (1983), on the other hand, examined the relationship between returns of NYSE common stock and several factors such as earnings price

ratios (E/P) and firm size. The results also reported that the common stock of small NYSE firms appeared to have higher returns than the those of large NYSE firms; meanwhile, stocks with high E/P had higher returns than stocks with low E/P. Fama and French (1992) investigate the impact of market beta, firm size (size effect), book-to-market equity ratio (BE/ME or valuation effect), financial leverage (financial risk effect), and the E/P ratio on average stock returns. The authors acknowledged that even if the market beta is used on its own, discarding the other variables, the relationship between beta and return is significantly weak. Meanwhile, the size and BE/ME have a close relation with return, even when combined with other variables. By the same token, in one of their most cited studies, Fama and French (1993) propose a three-factor model with overall market factor, factor related to firm size and book-to-market equity to explain the cross-section of returns. Similarly, Chou, Chou, and Wang (2004) examined the explanatory power of size and book-to-market in the cross-section of stock returns over various sample periods. However, the three-factor model is still unable to account for all the determinants of returns and leaves a significant portion of the variation in returns unexplained.

The subsequent studies mainly attempt to improve the explanatory power of the three-factor model by introducing additional factors. For example, Fama and French (1996) observed whether there was a relationship between the behavior of stock prices and the size or the BE/ME ratio and the dividend-to-price ratio (D/P). The result suggested that the market factor, size and BE/ME ratio play a role in explaining stock returns, whereas other factors such as D/P ratio are not significant. Carhart (1997) examines the mutual fund performance patterns with a factor representing 1-year momentum in stock returns, outside of three factors as mentioned in the Fama–French model. Liquidity is also a major factor in explaining asset returns (Lam & Tam, 2011; Liu, 2006; Pastor & Stambaugh, 2003). Pastor and Stambaugh (2003) investigate the impact of liquidity risk on average returns by extending FF3 with a liquidity factor. Liu (2006) reported that a liquidity-augmented two-factor model can explain the size and value effect. The author concluded that when the economy performs badly, liquidity tends to be low and investors require a high-liquidity premium linking liquidity risk to the business cycle or to the market state. Also, Lam and Tam (2011) explore the role of liquidity in pricing stock returns in the Hong Kong stock market. Their results suggest that liquidity is an important factor for pricing returns in Hong Kong after taking well-documented asset pricing factors into consideration.

Recently, Fama and French (2016b) revisit their three-factor model by extending it with two additional factors, namely investment and profitability factors. The model performs better than the three-factor model, although it fails to explain the average returns on small stocks with the same return patterns. Furthermore, with respect to international markets, Fama and French (2016b) reported that the five-factor model performs better in North America and Europe and for big stocks. Cakici (2015) reports similar results. In his paper, he compared the three-factor, four-factor and five-factor models on 23 developed stock markets. He finds strong evidence for the five-factor model in North America, Europe, and global market. The results show that profitability and investment factors merely do not exist in Japan and Asia Pacific portfolios. In other words, it is more appropriate to assess the performance of the Fama–French five-factor model at a country or regional levels.

It is noteworthy to mention that a majority of empirical studies on the applicability of original asset pricing models such as CAPM and Fama–French are conducted in developed market. Nevertheless, several works of asset pricing models for emerging markets have empirically tested the factor models of Fama–French and Carhart et al. For instance, Hoang and Phong (2012) assess the application of the original FF3 model in Vietnam’s stock market from 2007 to 2011. The authors figured out that the size is associated with the stocks’ return with the slope of greater than zero. The findings challenge the earlier studies and it is probably a characteristic of Vietnam stock market. As with most findings in the finance literature, some studies also explore other capital anomalies such as liquidity in Vietnam. Batten and Vo (2014a) show the positive relationship between liquidity and Vietnamese stock returns during the global financial crisis. Likewise, Nguyen (2016) developed the FF3 model by adding liquidity, in which liquidity is measured by two



different ways. The author reports that liquidity and liquidity risk have a strong influence on the profitability of listed shares. The optimal pricing model for Vietnam stock market is the model which combines FF3 model and liquidity factor.

In short, these findings assert that key drivers of stock returns in emerging markets are qualitatively similar to those in developed markets. Nonetheless, these studies ignore the debilitating effects on the modelling of asset prices that stem from emerging markets' structural differences from and partial integration with developed markets (Pereiro, 2010). It undermines the effectiveness of asset pricing models in explaining stock returns in these markets, which requires the customization of the models to the local settings (Harvey, 1995). Some outstanding characteristics of frontier or emerging markets like Vietnam include lower market liquidity and the dependence on foreign investment. Regarding the preference of foreign ownership in listed firms, several studies have tried to identify various firm attributes that determine the holdings of foreign investors such as size, dividend payout, stock return, risk, book-to-market ratio (BTM), financial leverage and firm performance (Dahlquist & Robertsson, 2001; Vo, 2014). For example, Vo (2014) employs multivariate linear regression to examine the relationship between the foreign ownership level and attributes of Vietnamese listed firm in Ho Chi Minh City Stock Exchange. The findings of the paper indicate that foreign investors have preference for large firms, firms with high BTM and firms with low leverage. On the other hand, it has been proven by a quite a few studies that foreign ownership has significant impact on stocks' risk and return through asset pricing models. The study of Huang and Shiu (2009) on local effects of foreign ownership in Taiwan stock market is such a sparse work. This study applies Carhart model (which combines FF3 and a momentum factor) to evaluate the investment performance of foreign investors in Taiwan stock market. Huang and Shiureveal a pronounced foreign ownership effect, whereby stocks with high foreign ownership outperform stocks with low foreign ownership since foreign investors enjoy a long-run information advantage over domestic investor.

As indicated previously, in order to explore the effectiveness of asset pricing models in a frontier/emerging market like Vietnam, the customization of the models to the local settings is necessary. Therefore, this study incorporates some aspects of the Fama–French method, notably the time series approach, the inclusion of three-factor variables and incorporating a measure of liquidity in the specific context of emerging markets. Furthermore, this study is different from previous works in respect of examining factors that are assumed to affect the portfolio's risk–return based on their foreign ownership ranking. Stocks are divided into five portfolios ranked by foreign ownership from high to low. This research approach allows us to assess the foreign ownership effect on stock's risk and return effectively.

### 3. Research methodology

#### 3.1. Research data

The secondary data of non-financial companies listed in both Ho Chi Minh City Stock Exchange and Ha Noi Stock Exchange over the period from 2010 to 2017 were collected from Fiiipro and Thomson Reuters. We exclude financial firms since they have their own financial reporting systems and different regulations on foreign ownership as well. In addition, firms with book value of less than zero are also excluded. Table 1 shows that the number of selected firms accounts for a large proportion of listed firms; in other words, the representativeness and the reliability of the research are ensured.

#### 3.2. Research model

Similar to Huang and Shiu (2009), the study employs asset pricing models to assess the investment efficiency of investors in terms of risk and return, based on differences in foreign ownership ratio. As suggested in previous studies, the FF5 model does not seem to work in the context of emerging markets (Cakici, 2015; Hoang & Phong, 2012). In addition, it is well established that investors in emerging markets implicitly price a liquidity premium into expected returns. It means that liquidity plays an important role in explaining the risk–return profile of stock portfolios (Batten & Vo, 2014a;

**Table 1. Number of listed and selected companies in Vietnam**

Year	Number of listed companies	Number of selected companies	Percentage %
2017	728	683	93.82
2016	692	639	92.34
2015	674	612	90.80
2014	645	567	87.91
2013	639	549	85.92
2012	654	536	81.96
2011	643	515	80.09
2010	596	471	79.03

*State Securities Commission of Vietnam.*

Nguyen, 2016). Therefore, in this study, we propose a research model to evaluate the investment performance in terms of risk and return as follows:

$$R_{it} - R_{ft} = \alpha_i + b_i(R_{Mt} - R_{ft}) + s_i(R_{SMBt}) + h_i(R_{HMLt}) + l_i(R_{LMHt}) + e_{it}$$

where  $R_{it}$  is the average return on foreign ownership portfolios  $i$  at month  $t$ ,  $R_{Mt}$  is the average market return,  $R_{ft}$  is the risk-free rate which is calculated from the interest rate of 1-year T-bill on a monthly basis,  $R_{SMBt}$  is the difference between returns on a diversified portfolio of small and large stocks,  $R_{HMLt}$  is the difference between returns on diversified portfolios of high and low book-to-market stocks, and  $R_{LMHt}$  is the difference between returns on diversified portfolios of low and high liquidity. The constant term  $\alpha_i$  is Jensen's alpha, and the  $e_{it}$  is the residual and  $b_i$ ,  $s_i$ ,  $h_i$ ,  $l_i$  are factor loadings of  $(R_{Mt} - R_{ft})$ ,  $R_{SMBt}$ ,  $R_{HMLt}$ , and  $R_{LMHt}$ , respectively.

Foreign ownership is the percentage equity ownership of foreign investors. The foreign ownership portfolios are constructed as follows: for each quarter, all selected stocks are separated into five portfolios based on their foreign ownership at the end of the previous quarter, including R1, R2, R3, R4 and R5 portfolios. R1 is the return of portfolio which consists of 1/5 (or 20%) of all sample stocks having highest foreign ownership. On the contrary, R5 is the return of portfolio with 1/5 (or 20%) of all sample stocks having smallest foreign ownership.

In addition, we also consider average returns of other portfolios, including average returns of big stock portfolio with high book-to-market ratio (BH), average returns of big stock portfolio with medium book-to-market ratio (BM), average returns of big stock portfolio with low book-to-market ratio (BL), average returns on small stock portfolio with high book-to-market ratio (SH), average returns on small stock portfolio with medium book-to-market ratio (SM), and average returns on small stock portfolio with low book-to-market ratio (SL).

Regarding liquidity measurement, this study employs two ways to assess liquidity:

+ Liq1 is measured by the monthly average trading volume of shares (in million dong)

+ Liq2 is measured by the number of traded shares each month to the number of outstanding shares ratio.

In estimated models using the Generalized Method of Moments (GMM) method, we employ the return of the previous time or past return ( $R_{t-1}$ ) as instrumental variable (I/V). Theoretically, employing  $R_{t-1}$  is consistent with Fama's assumptions on rational expectation and efficient market hypotheses; if the market is efficient, all relevant information is reflected in stock price and the return of the previous time is supposed to have effect on the current stock price. Additionally, Hansen (1982) and Cochrane



(2000) adjusted the omega matrix to correct all common errors when applying time series data. Most of the studies use  $R_{t-1}$  as the endogenous variable or I/V variable and provide consistent results. In our study, aside from using the lagged variables ( $t - 1$ ) of R1 to R5 as I/V variables, we also use liquidity variable 2 (Rliq2) as I/V variable since Liq2 is measured by the number of traded shares each month to the number of outstanding shares ratio whereas Liq1 is measured by the monthly average trading volume of shares. Therefore, it is clearly that number of outstanding shares has an effect on trading volume of shares.

#### 4. Research result

Table 2 illustrates descriptive statistics of portfolios excess returns, market excess returns and liquidity factors.

Table 2 shows that portfolios with higher foreign ownership ratio tend to have higher average return: the return of portfolio with the highest level of foreign ownership is 1.61% per month whereas the return of portfolio with the lowest level of foreign ownership is 1.41% per month. In terms of liquidity, general, the high-liquidity portfolio has higher average return (3.44% when liquidity calculated by the first way and 3.83% when liquidity calculated by the second way). Table 2 shows that, on average, portfolios R1 and R5 have experienced a greater fluctuation in comparison with the volatility of RMRF. In addition, it is noteworthy that the computation method of Vietnam stock market index (VN index) is currently based on market capitalization of all stocks. Therefore, it fails to reduce heavy impacts of stocks with large listed volumes. These explain why the volatility of RMRF is significantly different from our computed portfolios, which results in the high market premium factor.

Table 2 also reveals the significant variation in variables, which indicates that the data seems to have a problem of heteroskedasticity or non-stationarity. Therefore, we perform stationary test with results shown in Table 3.

Results from ADF (augmented Dickey–Fuller) test report that the computed absolute t-statistic values are all larger than the absolute critical value of 3.52 with a significant level of 1%. It indicates that all variables are stationary. Therefore, this finding suggests that employing the GMM method is suitable (Jagannathan & Wang, 1996).

The four-factor asset pricing model adjusted from FF3 is presented in Table 4.

From the estimation results in Table 4 reports, we observed some remarkable findings on the risk–return profile of portfolios with different foreign ownership. First, all models' alpha values are positive except for portfolio R3 with  $\alpha = -0.06 < 0$ . However, alphas of only four models, in

**Table 2. Summary statistics of variables**

Variables	Obs	Mean	Std. dev.	Min	Max
RSMB	96	-1.2516	4.9653	-13.0862	15.1549
RHML	96	-2.7153	2.3770	-10.7245	3.5239
RMRF	96	-0.7211	0.2079	-1.1771	-0.3249
R1	96	1.4075	5.3908	-11.5329	14.6632
R2	96	1.3087	5.5963	-14.2803	21.2171
R3	96	1.2249	5.7504	-14.4868	16.8820
R4	96	1.2949	6.6209	-15.4381	19.5956
R5	96	1.6121	5.9542	-14.8949	19.7641
RLIQ1	96	-3.4399	9.3523	-34.2476	15.4112
RLIQ2	96	-3.8317	11.6329	-39.7271	17.3046

*Calculated based on data from Finpro and Thomson Reuters.*

**Table 3. Test of stationarity**

Variables	Test statistic	1% Critical value	P-Value
RMRF	-6.25	-3.52	0.00
RSMB	-6.81	-3.52	0.00
RHML	-8.46	-3.52	0.00
R1	-7.49	-3.52	0.00
R2	-7.54	-3.52	0.00
R3	-7.23	-3.52	0.00
R4	-7.17	-3.52	0.00
R5	-7.20	-3.52	0.00
RLIQ1	-9.14	-3.52	0.00
RLIQ2	-8.26	-3.52	0.00

Calculated based on data from Fiinpro and Thomson Reuters.

**Table 4. Asset pricing model multiple regression results with GMM method**

Dependent variables	Alpha	$R_M - R_F$	$R_{SMB}$	$R_{HML}$	$R_{LIQ1}$	$R^2$	RMSE
R1	4.00(*)	5.17(*)	0.33(*)	-0.17	-0.34(*)	0.76	2.61
R2	1.41	2.07(***)	0.63(*)	-0.44(*)	-0.28(*)	0.81	2.40
R3	-0.06	0.35	0.82(*)	-0.64(*)	-0.24(*)	0.84	2.25
R4	1.78	2.35	0.93(*)	-0.55(*)	-0.25(*)	0.84	2.64
R5	3.18(**)	3.79(**)	0.86(*)	-0.59(*)	-0.16(*)	0.73	3.08

Authors' Computation with Stata.

Note: \*, \*\*, \*\*\* indicate the level of significance at 1%, 5% and 10%, respectively; endogenous variables include one-time period lagged variables of R1, R2, R3, R4, R5 and Liq2.

$R_F$  is calculated from 10-year government bond yield on a monthly basis;  $ME_t = P_t \times S_t$ , in which:  $ME_t$  is firm size at time  $t$  (in million dong),  $P_t$  is stock price at time  $t$  and  $S_t$  is the number of outstanding shares at time  $t$  (calculated each month); the book-to-market equity ratio variable ( $BE/ME$ ) is calculated by the following formula:  $(BE/ME)_t = BE_{t-1}/ME_t$ , where  $BE_{t-1}$  is the book value of equity. Since this value is obtained only at the end of the fiscal year, the book value of equity for the preceding year (year  $t-1$ ) is used for the current year; returns on SMB, HML portfolios are computed based on studies of Fama and French (1992; 1993, 2012), Carhart (1997), Lam & Tam (2011); R1, R2, R3, R4, R5 are average returns of portfolios that are sorted by different foreign ownership ratios from the 20% lowest to the 20% highest.

which R1 and R5 are dependent variables, are positive and statistically significant. It is worth noting that the portfolios with low level of foreign ownership (R1) and high level of foreign ownership (R5) get highest alphas of 4% and 3.18%, respectively. It indicates that these portfolios have highest average return (all else being equal). These results are in good agreement with those of Huang and Shiu (2009a), which have shown that stocks with high foreign ownership outperform stocks with low foreign ownership. However, Huang and Shiu (2009a) reported that the alpha of portfolios with lowest foreign ownership ratio (R5) is negative and not statistically significant. Our findings could be explained by signaling theory and agency theory. Regarding the portfolio with high foreign ownership (R1), the high involvement of foreign investor, especially large institutional foreign investors, is considered as a good signal to local investors since they expect that with knowledge and experience, foreign investors will contribute to the improved governance, higher business performance and as a result, it generates extraordinary stock returns. Meanwhile, portfolio R5 with lowest foreign ownership ratio often include family listed firms or concentrated ownership firms with few principal shareholders that are locally professional and experienced institutions or government bodies. Increased monitoring of the concentrated shareholder mitigates the agency problem between owner and managers and enhances firm performance. Additionally, due to his high ownership stake, the large

shareholder may have incentives to become actively engaged in setting firm policies to maximize firm value and therefore, results in outstanding stock returns (Mitton, 2002).

Second, regarding market risk premium, high level of foreign ownership tends to lessen the problem of stock price manipulation and herding investment among local investors when they follow foreign investors. The results, as seen in Table 4, indicate that the market beta is 5.17 for the portfolio with highest foreign ownership (R1); meanwhile, the beta is 3.79 for the portfolio with the lowest foreign ownership (R5) and all are at a statistically significant level. In contrast to some reports in the literature (Bartram et al., 2015; Huang & Shiu, 2009a), the small stock portfolios also have lower beta in comparison with the big stock portfolio, which refers that they face less risk.

Third, with respect to size effect or size premium, the beta coefficient values of the size premium are all positive. Still, the beta values of small portfolios (RSH, RSM, RSL) are all higher than those of big portfolios (RBH, RBM, RBL). This result is generally consistent with the theory which claims that portfolios of properties of a large size on the average tend to have lower risks than small portfolios. In consideration of foreign ownership factor, high-foreign-ownership portfolios (R4 and R5) have beta coefficients of 0.93 and 0.86, which are higher than low-foreign-ownership portfolios with beta coefficients of 0.33 and 0.63 (R1 and R2). It implies that firms with high level of foreign ownership endure more size risk. It is also inferred that foreign investors are interested in large scale and potential corporations. The finding obtained is broadly consistent with the study of Huang and Shiu (2009a), which showed that beta of the size variable is less than 1.

Fourth, regarding the value premium (RHML), the results point out that most beta coefficients are less than 0, indicating that the returns of portfolios and the return of the HML portfolio are negatively correlated. The results also confirm that high-foreign-ownership portfolios or small portfolios have higher beta, meaning that they are riskier than ones with low level of foreign ownership or large one. Our findings are in contrast to the hypothesis suggested by Huang and Shiu (2009a) that beta coefficient of the size variable is positive.

Finally, in terms of liquidity premium, the results show that all beta coefficients are less than 0, suggesting that the correlation between the returns of portfolios and the return of the Liq1 portfolio are negative. The estimation also finds that the portfolio with high level of foreign ownership is less risky than the portfolio with low level of foreign ownership. The most likely explanation of this result is that raising foreign ownership up could lead to an increase in investor's expectation of firm performance and thus increase return as well. In addition, extending foreign ownership could result in an increase in liquidity, which leads to more variation in stock prices, or in other words, stocks would become riskier. This finding concurs with the study of Nguyen (2016).

## 5. Summary and conclusion

It was the main purpose of the paper to draw attention to the return-risk profile of stock portfolios with different foreign ownership ratio in Vietnam. Regardless of several different findings, our results are generally consistent with other studies of Nguyen (2016), Huang and Shiu (2009a) and Bartram et al. (2015). Our study as well as others support the argument that higher foreign ownership portfolios could generate higher return and lower risk than other portfolios.

Overall, our empirical study pinpoints that an increase in foreign ownership has contributed to enhancing size and liquidity effect for listed firms. The results from this study reveal several practical implications worthy of investment.

First, if investors are interested in a superior investment strategy on the value of alpha, they should pay attention to portfolios with the lowest or highest level of foreign ownership. In addition, the big portfolio and medium book-to-market equity ratio and small portfolio and high book-to-market equity ratio also need to be taken into consideration.

Second, the above suggestion is also applied for investors pursue market trend following strategy. In other words, investors should also take into account portfolios with the lowest or highest level of foreign ownership. In addition, the large portfolio and medium book-to-market equity ratio and small portfolio should be concerned.

Lastly, size premium and value premium of portfolios rise in correspondence with the increase in foreign ownership ratio; therefore, it is necessary for investors who dream of having high return and low risk to construct balanced investment portfolios by considering portfolios with high beta coefficient in terms of size and portfolios with beta coefficient in terms of value and liquidity.

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#### Note

1. On 26 June 2015, the Government issued *Decree No. 60/2015/ND-CP* ("Decree 60") amending and supplementing certain provisions of *Decree No. 58/2012/ND-CP*, on the detailing and guiding the implementation of selected provisions of this, and the Law on Securities. The Decree takes effect on 1 September 2015, and replaces *Prime Minister Decision No. 55/2009/QĐ-TTg* (15 April 2009) on the ratio of foreign investor's participating on the Viet Nam securities market. Previously, a foreign investor may purchase up to 49% of total shares of a listed company. According to Decree 60, this restriction will be removed and instead, the new restriction will be subject to the WTO commitments or other specific domestic laws (e.g. the 30% cap in the banking sector). When there is no restriction under domestic law (e.g. for production companies, or distribution companies), then there is no limit for the foreign shareholding ratio. Decree 60 also lifts all restrictions to foreign investors to purchase bonds. Decree 60 also addresses many other functions of foreign investment in public companies, along with other key aspects related to securities investment for foreigners.

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