

# An Analysis of Investment Strategies and Abnormal Returns in the Vietnam Stock Market

Ming-Chin Chin<sup>1</sup>

*Department of Economics, Aletheia University, Taipei, Taiwan*

Nguyen Vu Hieu

*Department of Economics, Aletheia University, Taipei, Taiwan*

## **Abstract**

*The purpose of this paper is to understand the linkages between excess returns and four investment strategies - value, momentum, size, and liquidity - for the Vietnam stock market during the period 2006-2014. The empirical results suggest that a value strategy, such as the E/P and B/P ratios, and momentum and liquidity strategies are the most successful and generate significant excess returns, in contrast to the size strategy, which does not work in the Vietnam stock market. Therefore, investors who want to make a profit when investing in the Vietnam stock market should track published financial information and find winner stocks by referring to value, momentum, and liquidity strategies*

Keywords: *Investment strategy, Abnormal return, Holding period*

JEL Codes: G10; G11

Copyright © 2015 JAEBR

## **1. Introduction**

As a developing country, Vietnam has implemented many structural reforms for modernizing its economy and generating competitive export-driven industries since 2001. Vietnam joined the World Trade Organization (WTO) in January 2007 and became an official negotiating partner in the Trans-Pacific Partnership (TPP) trade agreement in 2010. These privileges have secured its place in the global market and also reinforced its home economic reform process. However, the financial crisis in 2008 and the resultant global recession hurt Vietnam's export-oriented economy. Notwithstanding this, Vietnam's GDP in 2012 grew at 5%, albeit at the slowest rate since 1999.

The country's agriculture share of economic output slowly shrunk from about 25% in 2000 to less than 22% in 2012, while industry share rose from 36% to nearly 41%. In addition, the opening up of Vietnam's financial markets comes from its WTO commitment as well as with the objective of forming a united Association of Southeast Asian Nations (ASEAN) capital market. The Vietnam government is continuously developing its financial markets in order to keep attracting foreign investors. For instance, the Vietnam stock market rose 144% in 2006, making it the world's third best performer after Peru and Venezuela. In 2013, the benchmark VN-Index climbed nearly 145%, and in 2014 it performed beyond expectations compared to the slowing global economy. However, some are concerned that the market is overheating, forming a dangerous speculative bubble.

---

<sup>1</sup> Correspondence to Ming-Chin Chin, E-mail: au4239@au.edu.tw.  
Copyright © 2015 JAEBR

According to a report<sup>2</sup> in January 2014, less than 5% listed companies publish their financial information for investors as reference. In other words, the investors in the Vietnam stock are not properly served. The vast majority of investors in Vietnam are individual investors, accounting for about 90% of the total number of registered accounts and about 70% of the total value of stock transactions.<sup>3</sup> Unfortunately, these investors are often less experienced and lack any knowledge about securities investment.

The goal of this paper is therefore to help investors make better judgments when investing in the Vietnam stock market (VSM) by applying the methodology proposed by Hart et al. (2003). For those who have not been trained in securities analysis, this paper shall provide effective investment strategies to help investors make more prudent decisions in this fast developing stock market. The results can also be used as a reference for the Vietnam government to develop sound economic policies so as to continuously attract higher quality foreign investment.

### **1.1 Overview of the Vietnam Stock Market**

The Vietnam stock market (VSM) includes two stock exchanges: Ho Chi Minh City Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX). The Ho Chi Minh City Securities Trading Center (HoSTC) was established in 2000 and then on August 8, 2007 it was renamed and upgraded to become HOSE. This is the largest stock exchange of Vietnam at the moment. The second securities trading center, Hanoi Stock Exchange (HNX) was launched in March 2005.

The Vietnam Stock Index or VN-Index is a capitalization-weighted index of all the companies listed on HOSE. The index was created with a base index value of 100 as of July 28, 2000. Prior to March 1, 2002, the market only traded on alternate days. As of July 2010, there were 247 companies listed on the HOSE with a market capitalization of VND537.4 trillion (US\$28.28 billion). The exchange had 342 listings in May 2014, including 302 stocks, 2 fund certificates and 38 bonds, with a total market capitalization of 310.5 trillion VND (US\$19.5 billion). Specifically, on 10 May 2014, HOSE's benchmark VN-Index ended 542.46, with the P/E ratio of 12.16, the lowest compared to other South East Asia countries. The highest record of VN-Index was on 12 March 2007 at 1,170.67 points.

Figure 1 illustrates the number of listed companies and the total number of stocks in HOSE. Before 2006, VSM was operated in a tentative manner, but after some encouraging policies and positive responses from domestic and international investors, 2006 was a booming year to VSM with 151 newly listed companies. Since then, VSM has become very active both in the number of newly listed firms and the number of outstanding shares of all listed stocks.

We see in 2008 that 164 companies were listed on HOSE with a market capitalization of about VND160,490 billion. In 2010, the number of listed companies on HOSE was 280, with the number of outstanding shares reaching 15.49 billion. Compared with 2009, the number of listed companies increased by 168 (37%). As some of the most important players in the economy, these listed firms have contributed strongly to Vietnam's economic development.

---

<sup>2</sup> [www.vietstock.com.vn](http://www.vietstock.com.vn).

<sup>3</sup> Cafef.vn (24/01/2010), The investors institution: Vietnam backwards rules. [Copyright © 2015 JAEBR

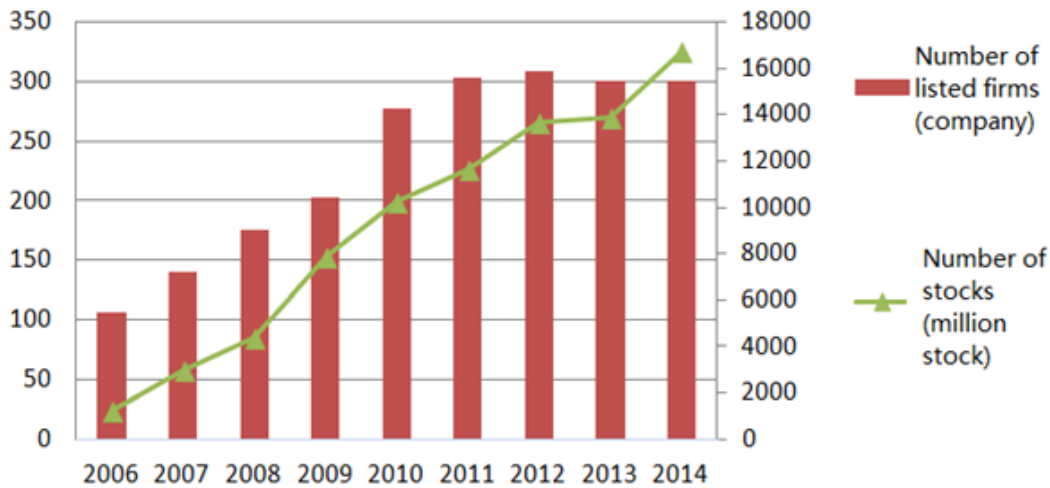


Figure 1. Number of listed companies and stocks (Source: CoPhieu68.vn.)

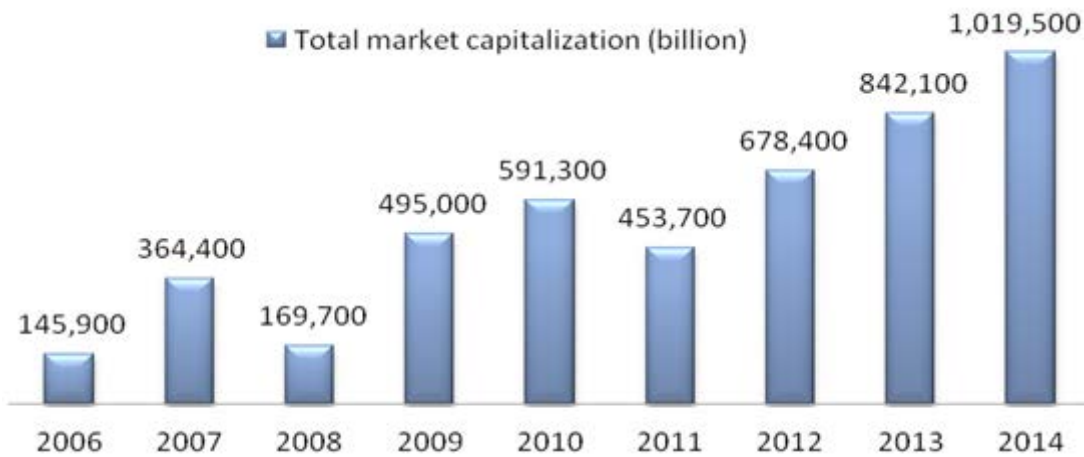


Figure 2. Growth in market capitalization (Source: CoPhieu68.vn.)

Investors in VSM are divided into four major groups: (1) Domestic individuals; (2) Foreign individuals; (3) Domestic institutions; and (4) Foreign institutions. According to the most recent statistics of the State Securities Commission of Vietnam (SSC),<sup>4</sup> of April 2013, Vietnam Securities Depository (VSD) has issued 16,238 securities trading codes to investors, including 2,054 institutional investors and 14,184 individual investors. At the same time, 96 foreign investors are made up of 22 organizations and 74 individuals. Figure 3 shows the average value of transactions per day by domestic and foreign investors over time.

<sup>4</sup> Vietstock.vn  
Copyright © 2015 JAEBR

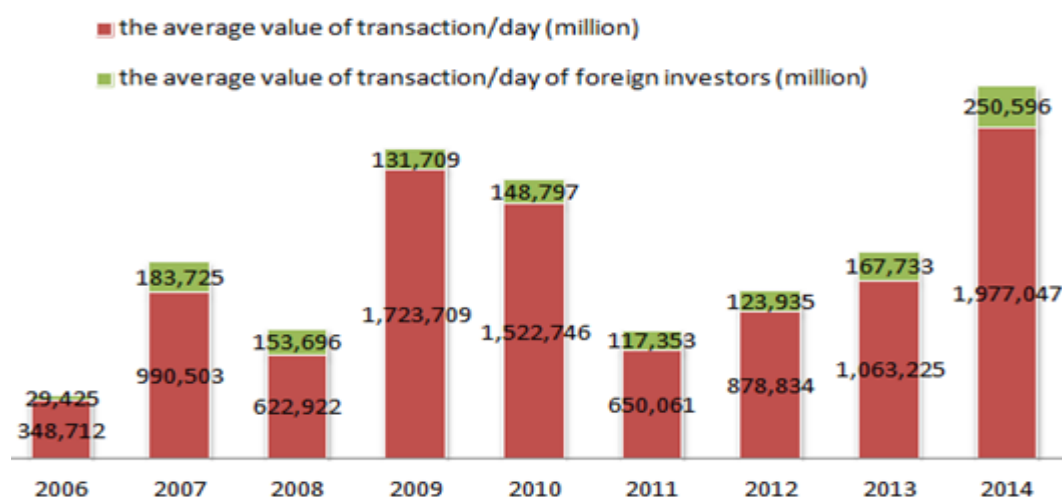


Figure 3. Growth in average transaction value/day (Source: CoPhieu68.vn.)

## 1.2 Objectives

The goal of this paper is to investigate the linkages between excess returns and four strategies - value, momentum, size, and liquidity - in VSM. These four strategies were developed by Jegadeesh and Titman (2001) and Hart et al. (2003). Specifically, earnings per share (E/P) and book to market value (B/M) are considered value strategies; the average return is a momentum strategy; market capitalization is a size strategy; and the turnover rate of a stock is a liquidity strategy. We now set up four hypotheses in this research.

H1: There is a significant relationship between the value strategy and stock excess returns.

H2: There is a significant relationship between the size strategy and stock excess returns.

H3: There is a significant relationship between the momentum strategy and stock excess returns.

H4: There is a significant relationship between the liquidity strategy and stock excess returns.

## 2. Literature Review

There are many past studies that address this same issue and apply the same approach, but none have focused on VSM. Jegadeesh and Titman (1993) examined the profitability of trading strategies and showed that buying past winners and selling past losers may result in significant abnormal returns over the 1965 to 1989 period. Stocks in the winners portfolio achieve significantly higher returns than stocks in the losers portfolio around quarterly earnings announcements. The momentum literature has mostly cited Jegadeesh and Titman (1993) in interpreting momentum profits as a behavioral underreaction to firm-specific information.<sup>5</sup>

Basu (1977, 1983) investigated over 1400 firms listed on the New York Stock Exchange from 1956 to 1971 and from 1963 to 1980, respectively. Both time periods' results demonstrated that the expected return is negatively related to the E/P ratio. Low E/P portfolios seem to, on average, earn higher absolute and risk-adjusted rates of return than high E/P securities. To the extent that low E/P portfolios do earn superior returns on a risk-adjusted basis,

<sup>5</sup> Barberis, Shleifer, and Vishny (1998), Daniel, Hirshleifer, and Subrahmanyam (1998), and Hong and Stein (1999) attempted to explain the underreaction-related empirical patterns by relying on a variety of psychological biases such as conservatism, self-attributive overconfidence, and slow information diffusion.

the proposition of the price-ratio hypothesis on the relationship between investment performance of equity securities and their E/P ratios seems to be valid.

Banz (1981) was the first researcher to argue that, on average, small firms earn higher returns than large firms. Banz used common stocks' monthly data on the New York Stock Exchange from 1926 to 1975. The results showed that a non-linear stable relationship exists between size and a stock's expected return. On average, small firms' earnings are 0.4% higher than large firms' earnings per month.

Fama and French (1992) introduced the three-factor model by conducting a study in predicting relationships between market excess returns, size, and B/M ratio towards stock excess returns. Among the three markets - New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and NASDAQ - they contended that size and B/M ratio both are factors that could explain return sensitivity toward risk. The result shows that the book-to-market ratio effect can explain and predict future stock returns.

Chui, Titman, and Wei (2000) examined momentum profits in eight Asian markets by their ownership structure, legal systems, and valuation uncertainty. Their findings present that buying past winners and selling past losers are highly profitable strategies. They also concluded that the momentum effect is stronger for independent firms with smaller market capitalizations, lower B/M ratios, and higher turnover ratios. They also documented that the momentum effect is stronger for independent firms than for group-affiliated firms and noted weak evidence that foreign ownership can influence the momentum effect.

Hart et.al. (2003) looked at the profitability of a broad range of stock selection strategies in 32 emerging markets over the period 1985-1999. Their results show that value, momentum, and earnings revisions strategies are the most successful and can generate significant excess returns, in contrast to strategies based on size, liquidity, and mean reversion. They also suggest that the performance of the strategies can be enhanced by selecting stocks under multiple characteristics and by incorporating country selection, although the latter bears the cost of increased risk.

Liu (2009) found a positive relation in the China stock market between the B/M ratio and stock excess returns. That study also saw a negative relationship between size and stock excess returns. Moreover, the size effect is stronger than the B/M ratio effect.

The only paper we found that has studied VSM is Phuong and Vinh (2013). They examined the impacts of abnormal income and stock liquidity on stock returns at the announcement of financial earnings for firms listed on VMS from 2007 to 2012. Their study showed that there is a positive relationship between abnormal returns and stock liquidity at earnings announcements. When considering these two factors jointly, however, there is no significant relationship with stock returns.

### **3. Methodology**

We apply all strategies without a delay between the ranking period and the moment of portfolio formation. All sorting characteristics would have been available to investors at the time of ranking, and hence the selection strategies do not use any forward information. At the beginning of each month, the stocks by firms are ordered on each of the above characteristics or "return factors" in descending order. However, there is one exception: the rankings of the past 1- to 36-month return variables are in ascending order, such that the short-term and long-term mean reversions can be examined more effectively.

While sorting the data, an equally weighted portfolio is constructed from the top 15% ranked stocks (TOP), which are called “winners”. Using the same procedure, an equally weighted portfolio of “losers” is constructed from the bottom 15% ranked stocks (BOTTOM). EWI is the equally weighted index of all stocks forming the sample. In this research, the average returns of the winners and/or losers portfolios are compared with EWI, which consists of all stocks in the relevant universe.

### 3.1 Value Strategy

Value portfolios have been shown to have predictive ability for expected stock returns.<sup>6</sup> There are two selection strategies: one is earning-price (E/P) ratio, and the other is book to market (B/M) value ratio. The E/P ratio is earnings per share divided by stock price, and the formula is (1),<sup>7</sup> where  $i$  indicates stock and  $t$  is time. The E/P effect typically states that firms with low ratios earn higher returns than those with high ratios. The intuition is that a low E/P ratio means the stock price is devalued, and so its price is expectable in the future.

$$E/P_{i,t} = \frac{EPS_i}{Price_{i,t}} \quad (1)$$

The B/M ratio is calculated from historical costs by looking at firms’ accounting value. Market value is assessed by the market price of a firm’s stock or its market capitalization. The ratio in (2) is the book equity (BE)<sup>8</sup> of a firm for the fiscal year ending in year  $t-1$  to the firm’s market equity (ME)<sup>9</sup> at end-December of year  $t-1$ .

$$B/M_{i,t} = \frac{BE_{i,t-1}}{ME_{i,t-1}} \quad (2)$$

### 3.2 Momentum Strategy

To construct momentum portfolios, Hart et al. (2003) and Jegadeesh and Titman (1993) suggested that all stocks be sorted at the beginning on the basis of their past  $k$ -month returns, and then one holds the resulting high (low) portfolios for the subsequent  $k$ -months. All stocks are equal-weighted within each portfolio. To avoid potential microstructure biases, we skip one month between the end of the ranking period and the beginning of the holding period.

With the momentum strategies, we can calculate the average return over the previous 1, 3, 6, 9, 12, 24 and 36 months (denoted as  $kMR$ , where  $k$  is the number of months). This means that stocks are ranked on their past returns. Stocks with higher past returns are expected to have higher future returns. The formula is as (3).

$$kMR = \left[ \prod_{i=1}^t \left( \frac{P_{it} - P_{it-1}}{P_{it-1}} + 1 \right) - 1 \right] \quad (3)$$

We note that  $P_{it-1}$  and  $P_{it}$  in (3) are the adjusted open and closing stock price for stock  $i$  at the beginning and the ending of the day, respectively;  $t$  is the number of days in one month. At the beginning of each month, we rank the stocks by firm on each of the above characteristics or “return factors” in descending order. The rankings based on the past 1- to 36-month return

<sup>6</sup> E/P should be related to expected returns, whatever the omitted sources of risk, as noted by Ball (1978).

<sup>7</sup> Natural logs for size and book to price are used, while earnings to price and sales to price are simple ratios. This is consistent with Fama and French (1992).

<sup>8</sup> The book equity (BE) is defined as the book to market value of stockholders’ equity, plus balance sheet deferred taxes and investment tax credits, minus the book to market value of the preferred stock. Depending on availability, the redemption, liquidation, or par value, in that order, are used to estimate the book to market value of the preferred stock.

<sup>9</sup> A firm’s market equity (ME) is defined as its stock price multiplied by number of shares outstanding.

variables are in ascending order, such that we effectively test short-term and long-term mean reversions. Every portfolio is constructed to be kept for a period of k- months.

The momentum profit is generally considered as a by-product of certain stocks being riskier than others, thus having higher expected returns. This is because momentum strategies take long (short) positions in stocks with high (low) past returns; if these past returns are high (low) due to systematic risk factors, then the same stocks should continue to earn relatively high (low) returns in future periods. If this interpretation is correct, then momentum profits can be consistent with the market efficiency hypothesis.

### 3.3 Size Strategy

The size-effect anomaly is found in empirical evidence that the returns generated by an equity asset are inversely related to the size (i.e., market capitalization) of the underlying firm.<sup>10</sup> Size is taken to be the market capitalization of the stock at the end of the previous month.

### 3.4 Liquidity Strategy

A widely used proxy for liquidity is the turnover rate of a stock. It is simply the number of shares traded over a period divided by the number of shares outstanding during that period. This is an intuitive measure, as it simply states how many times the outstanding equity switched hands during a period. The turnover rate does not measure either liquidity or illiquidity, but it may serve as a good proxy for liquidity in that the trading activity of stocks gives a signal of the depth. As either of these measures must be part of the time series regressions, where the sensitivities of the excess returns of each portfolio to the various explanatory variables are determined, the starting point of the data for the explanatory variables is decided by the starting point of the liquidity data (Datar et al. (1998)). The turnover rate herein is given by (4).

$$TR_{it} = \frac{1}{t} \sum_{k=1}^t \frac{\text{Volume}_{i,t-k}}{\text{Shares}_{it}} \times 100\% \quad (4)$$

This definition could be somewhat problematic as the number of shares outstanding often changes during the fiscal year, while the traded number of shares can be affected by changes in the number of shares outstanding. The number of shares traded during a month should always be compared to the number of shares outstanding in the same month. Datar et al. (1998) avoided this problem by excluding companies that have changed the number of outstanding shares during the underlying period. However, this reduces the sample size from time to time. In a study with a relatively small sample, an alternative solution is called for. If an average over some previous months is needed, it should be an average of the turnover rates instead. In other words, for each month the turnover rate is calculated, and then for each time period the turnover rate is defined as the average of the turnover rates for the preceding t months.

### 3.5 Abnormal Stock Returns

The estimations of the average return are (5)-(7).

$$R_{hij}^{TOP} = \frac{1}{n} \sum_{m=1}^n \left\{ \left[ \prod_{k=1}^h (R_{ijkm}^{TOP} + 1)^{\frac{1}{h}} \right] - 1 \right\} \quad (5)$$

<sup>10</sup> This is consistent with Fama and French (1992).

$$R_{hij}^{BOTTOM} = \frac{1}{n} \sum_{m=1}^n \left\{ \left[ \prod_{k=1}^h (R_{ijkm}^{BOTTOM} + 1)^{\frac{1}{h}} \right] - 1 \right\} \quad (6)$$

$$R_{hij}^{EWI} = \frac{1}{N} \sum_{m=1}^N \left\{ \left[ \prod_{k=1}^h (R_{ijkm}^{EWI} + 1)^{\frac{1}{h}} \right] - 1 \right\} \quad (7)$$

Where

h: months of holding period (h = 1, 3, 6, 9, 12, 24, 36).

i: stock selection strategies.

n: TOP and BOTTOM number of firms in portfolio.

N: number of firms in portfolio EWI.

$R_{ijkm}$ : stock return of each firm (m) in the j period at k months under stock selection strategy i.

With the different value strategies considered, the E/P strategy generates the highest average excess return. This holds irrespective of whether excess returns are measured relative to the equally weighted index (TOP - Minus - Index, TMI) or relative to the loser portfolio (TOP - Minus - BOTTOM, TMB). The estimate is given by (8)-(10).

$$AR_{hij}^{TMI} = R_{hij}^{TOP} - R_{hij}^{EWI} \quad (8)$$

$$AR_{hij}^{BMI} = R_{hij}^{BOTTOM} - R_{hij}^{EWI} \quad (9)$$

$$AR_{hij}^{TMB} = R_{hij}^{TOP} - R_{hij}^{BOTTOM} \quad (10)$$

Here, AR is abnormal stock returns.

### 3.6 Holding Period and Testing

To test the significance of abnormal returns in each portfolio, we employ t-statistics to test the null hypothesis. First, because of overlapping data (the data frequency is monthly, but returns are measured over holding periods of up to 36 months), the standard errors for heteroskedasticity and autocorrelation are corrected by using the Newey and West (1987) adjustment. The t-statistics of selection strategy i in the holding period are estimated by (11).

$$t_{hi} = \frac{\overline{X_{hi}} - \mu_{hi}}{S_{hi} / \sqrt{N}} \quad (11)$$

Where

$\overline{X_{hi}}$ : average abnormal returns of selection strategy i in the holding period.

$S_{hi}$ : standard deviation of the abnormal returns in selection strategy i in the holding period.

N: total number of samples in the research period.



The  $\bar{X}_{hi}$  and  $S_{hi}$  of each strategy  $i$  are given by:

$$\bar{X}_{hi}^{TMI} = \frac{\sum_{j=1}^J AR_{hij}^{TMI}}{N} \quad S_{hi}^{TMI} = \sqrt{\frac{\sum_{j=1}^J (AR_{hij}^{TMI} - \bar{X}_{hi}^{TMI})^2}{N - 1}}$$

$$\bar{X}_{hi}^{BMI} = \frac{\sum_{j=1}^J AR_{hij}^{BMI}}{N} \quad S_{hi}^{BMI} = \sqrt{\frac{\sum_{j=1}^J (AR_{hij}^{BMI} - \bar{X}_{hi}^{BMI})^2}{N - 1}}$$

$$\bar{X}_{hi}^{TMB} = \frac{\sum_{j=1}^J AR_{hij}^{TMB}}{N} \quad S_{hi}^{TMB} = \sqrt{\frac{\sum_{j=1}^J (AR_{hij}^{TMB} - \bar{X}_{hi}^{TMB})^2}{N - 1}}$$

This research refers to Hsu (2010) to estimate the number of lags. Figure 4 is where the adjustment equals the number of months of overlapping holdings.

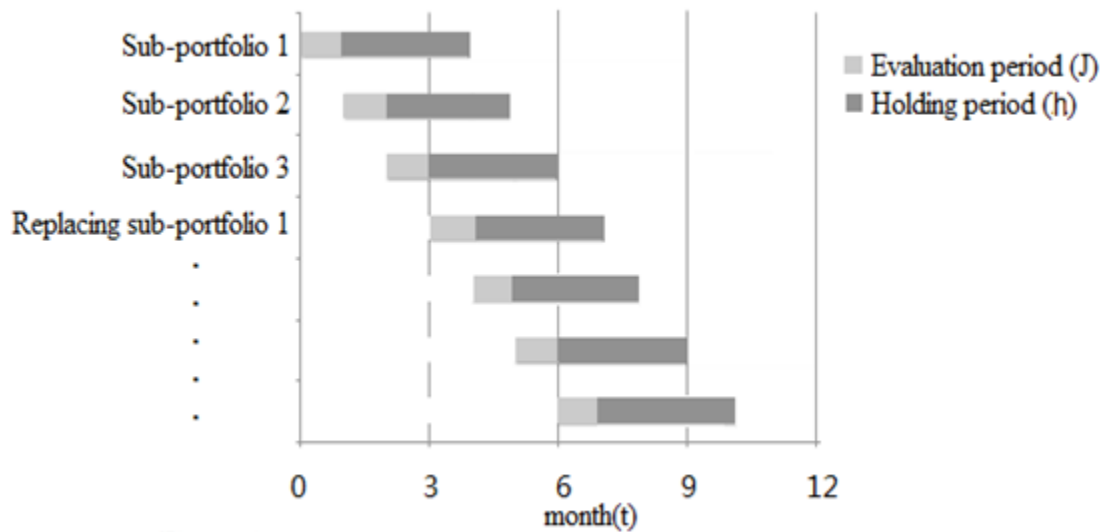


Figure 4. Schematic overview of portfolio with overlapping holdings where  $J=1, h=3$ .

#### 4. Empirical Analysis and Results

The data used in this paper are freely available from SSC and cophieu68.vn. The whole research period is 96 months from June 2006 to May 2014. We employ monthly data for 299 firms listed on HOSE. Table 1 lists the number of samples (stock selection strategies vs. holding period) in this research.

**Table 1. Numbers of samples for this research**

	Months of holding period						
	1-month	3-month	6-month	9-month	12-month	24-month	36-month
E/P	97	95	92	89	86	74	62
B/M	97	95	92	89	86	73	60
1MR	95	95	92	89	86	74	62
3MR	95	93	91	88	85	73	61
6MR	92	91	88	85	82	70	58
9MR	89	88	85	82	79	67	55
12MR	87	85	82	79	76	64	51
24MR	75	73	70	67	64	52	40
36MR	63	61	58	55	52	40	28
Size	97	95	92	89	86	74	62
Turnover	95	95	92	89	85	74	62

#### 4.1 Value Strategy - E/P Ratio

Table 2 and Figure 5 show the average returns of the portfolios (TMI, BMI, TMB) to the E/P ratio under different holding periods (1-, 3-, 6-, 9-, 12-, 24-, and 36-month). Almost all results are statistically significant. The highest returns come from the 3- and 6-month TMB portfolios at 2.47% and 2.07%, respectively. However, the excess returns of the BMI portfolios are between -1.52% and -0.5%. Therefore, investors could make excess returns by holding winner stocks and selling loser stocks using the E/P ratio as a selection strategy.

**Table 2. Empirical results of the E/P ratio effect**

	TOP	BOTTOM	EWI	TMI	t(TMI)	BMI	t(BMI)	TMB	t(TMB)
1-month	1.01	-0.71	0.64	0.37	0.52	-1.35	-0.38*	1.72	0.64
3-month	1.37	-1.10	0.43	0.95	0.54	-1.52	-1.08*	2.47	0.91*
6-month	0.99	-1.09	0.31	0.68	0.53	-1.39	-3.42***	2.07	1.10*
9-month	0.54	-1.15	-0.01	0.56	0.85*	-1.13	-3.00***	1.69	2.27**
12-month	0.41	-1.20	-0.27	0.68	0.94*	-0.93	-2.92***	1.61	2.70**
24-month	0.23	-1.15	-0.64	0.87	1.16*	-0.51	-2.29**	1.38	2.56**
36-month	0.19	-1.04	-0.54	0.73	0.74*	-0.50	-5.46***	1.23	3.79**

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

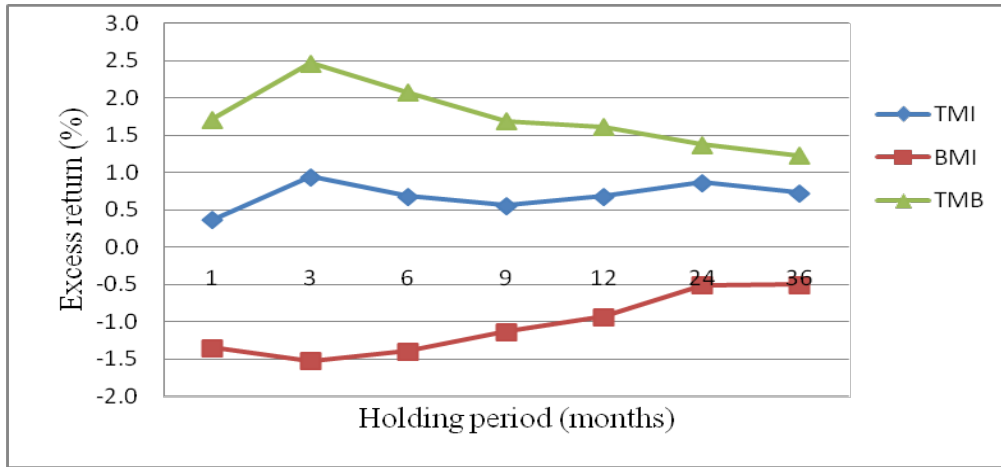


Figure 5. E/P ratio effect

### 4.2 Momentum Strategy - One-month Effect

Table 3 and Figure 6 summarize the average returns of the portfolios (TMI, BMI, TMB) to the momentum strategy for a one-month record under different holding periods (1-, 3-, 6-, 9-, 12-, 24-, and 36-month). The highest excess return of the TMB portfolio is 6.18% by holding for one month. The positive returns come from both the TMB and TMI portfolios. Again, all BMI portfolios post negative excess returns. Therefore, the investment suggestion referring to the past one-month record is to hold winner stocks and sell loser stocks.

Table 3. Empirical results of the one-month effect

	TOP	BOTTOM	EWI	TMI	t(TMI)	BMI	t(BMI)	TMB	t(TMB)
1-month	3.38	-2.79	0.06	3.32	1.17*	-2.86	-1.00	6.18	1.66**
3-month	2.50	-2.06	0.04	2.46	0.85*	-2.10	-0.77	4.56	1.19*
6-month	1.54	-1.12	0.03	1.51	0.66*	-1.15	-0.57	2.66	0.91*
9-month	1.25	-0.82	0.00	1.24	0.65*	-0.82	-0.76	2.07	0.98*
12-month	0.91	-0.81	-0.02	0.93	0.61*	-0.79	-0.49	1.72	0.80*
24-month	0.42	-0.48	-0.06	0.48	1.50*	-0.43	-1.41*	0.90	2.81**

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

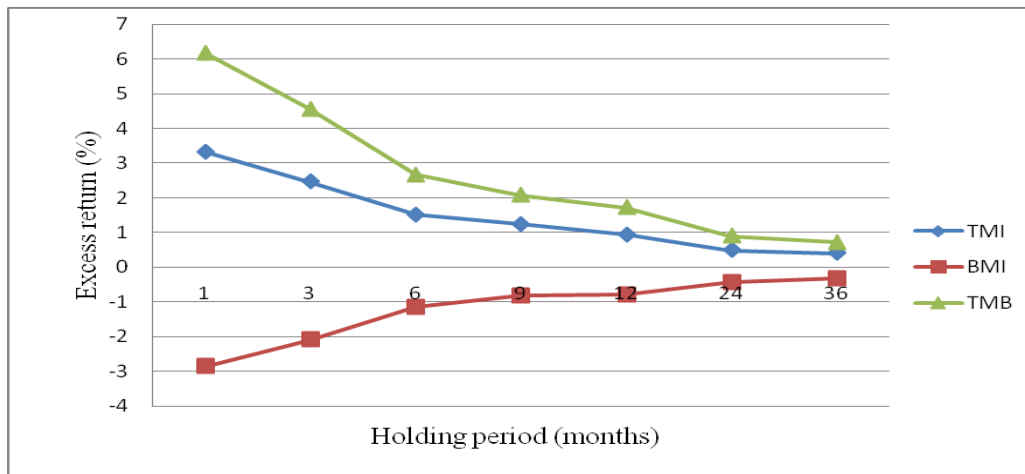


Figure 6. One-month effect

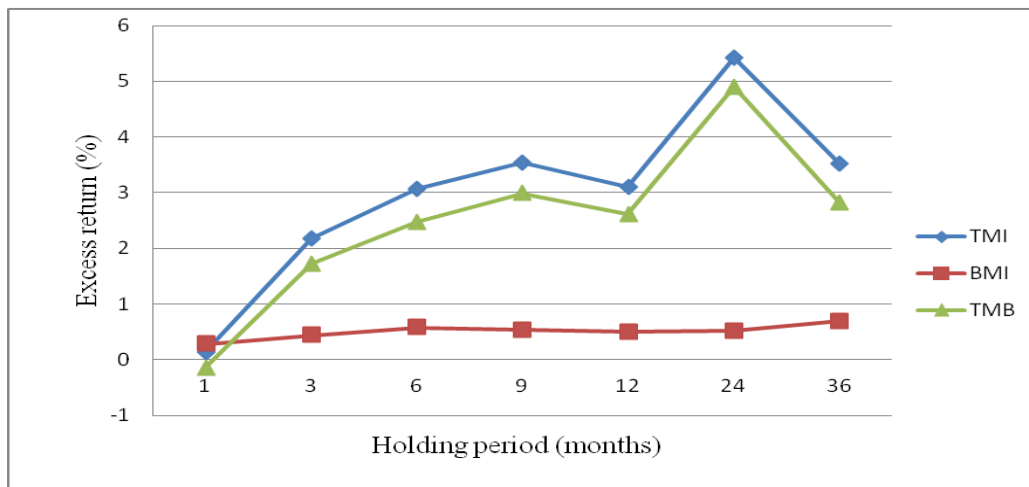
### 4.3 Liquidity Strategy

Table 4 and Figure 7 show the average returns of portfolios (TMI, BMI, TMB) to the turnover rate effect under different holding periods (1-, 3-, 6-, 9-, 12-, 24-, and 36-month). The results show that the less liquidity a stock has, the lower its returns are, and vice versa. The highest excess return is 5.42% by the TMI portfolio for holding 24 months. Almost all portfolios (TMI, BMI, TMB) have positive returns. Therefore, the strategy is to buy winner stocks and hold for at least 24 months.

**Table 4. Empirical results of the liquidity strategy**

	TOP	BOTTOM	EWI	TMI	t(TMI)	BMI	t(BMI)	TMB	t(TMB)
1-month	0.19	0.34	0.06	0.13	2.55***	0.28	2.98**	-0.15	-1.14*
3-month	2.13	0.40	-0.04	2.17	2.96***	0.44	1.36*	1.72	2.90***
6-month	2.87	0.39	-0.19	3.06	2.97***	0.58	1.96**	2.47	2.91***
9-month	3.27	0.28	-0.26	3.54	2.79***	0.54	1.80**	2.99	2.74***
12-month	2.81	0.20	-0.29	3.10	2.59***	0.50	2.42**	2.61	2.54**
24-month	5.08	0.18	-0.34	5.42	2.75***	0.52	2.45**	4.90	2.72***
36-month	3.04	0.22	-0.48	3.52	2.02***	0.69	2.90***	2.82	1.97**

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.



**Figure 7. Turnover rate effect**

### 4.4 Size Strategy

Table 5 shows the average returns of portfolios (TMI, BMI, TMB) for the size strategy under different holding periods (1-, 3-, 6-, 9-, 12-, 24-, and 36-month). Almost all results are statistically insignificant except the BMI portfolios. However, the excess returns of the BMI portfolios are all negative and even worse when holding for a longer period. In other words, the size strategy is not effective in VSM.

**Table 5. Empirical results to the size strategy**

	TOP	BOTTOM	EWI	TMI	t(TMI)	BMI	t(BMI)	TMB	t(TMB)
1-month	3.22	-1.35	0.06	3.15	1.11*	-1.41	-1.06*	4.57	1.68*
3-month	-1.13	-7.19	0.04	-1.17	-0.14	-7.23	-6.46***	6.06	0.73*
6-month	-2.41	-8.61	0.03	-2.44	-0.17	-8.64	-9.47***	6.20	0.44
9-month	-3.30	-9.08	0.00	-3.30	-0.23	-9.08	-12.08***	5.78	0.41
12-month	-2.85	-9.31	-0.03	-2.83	-0.15	-9.29	-13.74***	6.46	0.34
24-month	-7.15	-9.73	-0.06	-7.08	-1.40	-9.66	-34.35***	2.58	0.51*
36-month	-6.85	-9.78	-0.05	-6.79	-1.02	-9.73	-31.20***	2.93	0.44

\*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively.

## 5. Conclusions

Vietnam is a developing country that joined WTO in January 2007 and has reinforced its economic reform process since then. Vietnam's stock exchange is in the developing stages, yet growth has been stunning. By the end of 2014, market capitalization reached VND 1,156 trillion, equivalent to 32.24% of GDP. However, there is a lack of actual research on its market orientation in the literature. This paper helps fill this gap by analyzing the linkages between excess returns and four investment strategies in VSM: value, momentum, size, and liquidity. The research period on VSM is from 2006 to 2014, taking the database from SSC and cophieu68.vn for 299 listed firms.

The results of this research confirm those in Hart et al. (2003): for profitable investment, one can employ trading strategies based on value, momentum, and liquidity, but not on size when looking at VSM. However, the results of this research are quite different from Jegadeesh and Titman (1993), Rouwenhorst (1998), and Lee and Swaminathan (2000). One explanation is that those papers studied developed markets, while another reason may be attributed to differences in methodology. Specifically, those papers imposed a minimum capitalization requirement when examining the performance of the size strategy, but this paper could not do this due to limited available data.

The main results of this paper show that there exist disparities in winners and losers stocks under E/P, B/M, and momentum effects. In fact, the BMI portfolios exhibit no excess return over the short term for almost every case. Furthermore, this paper notes that there is a positive relationship between abnormal returns and stock liquidity - that is, the more liquidity as stock has, the larger its returns. Therefore, investors who want to have a greater probability of making profits when investing in VSM should track published financial information and find winner stocks by referring to value, momentum, and liquidity strategies. Another option to consider is to go long long on winner stocks and go short on loser stocks when using the liquidity strategy. Finally, from the standpoint of risk management, this paper offers a tool to evaluate the risk exposure among different stock investment strategies in VSM.

In sum, one difficulty while conducting this research was the availability of data. Recent studies by the World Bank<sup>11</sup> have shown that transparency remains a challenge across a wide range of public sector governance areas in Vietnam, even compliance with legal requirements. In other words, transparency in the stock market still needs to keep improving in order to gain

<sup>11</sup> See details Smith G, Binh LD, Colvin J, Rab H. 2014. *Transparency of state owned enterprises in Vietnam : current status and ideas for reform*. Washington, DC: World Bank Group.

investors' trust. In general, the transparency level of a stock market will positively affect other sectors of a nation's economy. The benefits to increased transparency include timely availability of credible economic data and better communication of policy changes. These actions can help reduce market uncertainty and perceptions of risk, thus helping to gain investors' trust in VSM.

## References

- Banz R. 1981. The relation between return and market value of common stocks. *Journal of Financial Economics* 9, 3-18.
- Basu K. 1977. Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis. *The Journal of Finance* 32: 3, 663-682.
- Basu K. 1983. The Emergence of Isolation and Interlinkage in Rural Markets. *Oxford Economic Papers* 35, 262-280.
- Campbell JY, Shiller RJ. 1988. Interpreting Cointegrated Models. *Journal of Economic Dynamics and Control* 12, 505-522.
- Chui ACW, Titman S, Wei KC. 2000. Momentum, legal systems and ownership structure: An analysis of Asian stock markets. *Working paper*. University of Texas at Austin.
- Datar VT, Naik NY, Radcliffe R. 1998. Liquidity and stock returns: An alternative test. *Journal of Financial Markets* 1, 205-219.
- Fama EF, French KR. 1992. The Cross-Section of Expected Stock Returns. *Journal of Empirical Finance* 47:2, 427-465.
- Hart J, Slagter E, Dijk D. 2003. Stock selection strategies in emerging markets. *Journal of Empirical Finance* 10:2, 105-132.
- Hart JVD, Zwart GD, Dijk DV. 2005. The success of stock selection strategies in emerging markets: Is it risk or behavioral bias? *Emerging Markets Review* 6, 238-262.
- Hsu HH. 2010. Emerging Stock Holding Period and Return. *Graduate Institute of Financial & Economics*. Master thesis, Aletheia University.
- Jegadeesh N, Titman S. 1993. Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency. *The Journal of Finance* 48:1, 65-91.
- Jegadeesh N, Titman S. 2001. Profitability of Momentum Strategies: An Evaluation of Alternative Explanations. *The Journal of Finance* 56:2, 699-720.
- Lee CMC, Swaminathan B. 2000. Price Momentum and Trading Volume. *Journal of Finance* 55:5, 2017-2069.
- Liu YG. 2009. An Empirical Cross-Section Analysis of Stock Returns on the Chinese A-Share Stock Market. Master Degree of Commerce and Management. Master thesis. Lincoln University.
- Phuong LTK, Vinh VX. 2013. Abnormal income, liquidity and stock returns at the announcement of financial earnings. *Journal of Economics & Development (Vietnam)* 199:2, 31-39.
- Ritter JR. 1991. The Long-Run Performance of Initial Public Offerings. *Journal of Finance* 46:1, 3-27.

- Rouwenhorst KG. 1999. Local Return Factors and Turnover in Emerging Stock Market. *Journal of Empirical Finance*.54:4, 1439-1464.
- Smith G, Binh LD, Colvin J, Rab H. 2014. Transparency of state owned enterprises in Vietnam: current status and ideas for reform. Washington, DC: World Bank Group.
- Van Horne JC. 1980. The Term Structure: A Test of the Segmented Markets Hypothesis. *Southern Economic Journal* 47:4, 1129-1140.