

## ARTICLE



# Effect of Market Sentiment And Economics on Stock Returns in Vietnam

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### Abstract

Many factors combine to form an overall investment environment and impact the stock market. Investor sentiment always greatly affects the stability of the market, especially the stock market. The impact of psychological factors is always very complicated, making the stock market always have a very high risk of instability. The macro economy always faces many difficulties.

For Vietnam, the impact of psychological factors on the market in recent years has been extremely complicated, causing bad consequences, threatening macroeconomic instability, and financial security is not guaranteed. This fact requires serious studies on the influence of investor psychology on the Vietnamese stock market and investors must understand all the factors that can affect the stock market. securities to make effective investment decisions.

**Key words:** Market sentiment, investor sentiment, behavioral finance, stock returns, Vietnam stock market,...

## 1 | INTRODUCTION

The mainstay of traditional finance is the Efficient Market Hypothesis (EMH), which states that all information to a business is immediately reflected in stock prices, and all investors are smart and capable the same information and cannot pass the market. However,

the assumptions of traditional finance have failed to explain the unusual, not "reasonable" phenomena that occur in reality in the market such as the January Effect, the day of the week effect, or the bubbles. Asset bubbles leads to stock market crash, etc... Behavioral finance was created to fill the fundamental gaps of traditional finance with the assumption that financial asset prices are not always

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constant motivated by reasonable expectations of future profits, by the fact that people in general, and market participants in particular, are emotional beings, not just rational ones. Their investment decisions depend not only on qualitative factors according to the generalized model, but also on personal emotions or market movements. These factors have led to different decisions in the market causing stock prices to continuously rise and fall.

In addition, the Capital Asset Pricing Model (CAPM) believes that the only factor that affects the expected return of an investment in a stock is the market risk premium and the sensitivity of that stock to the general market movements is beta. The CAPM model has been criticized by scholars in the traditional and behavioral finance schools. In fact, psychological factors have an impact on investment returns, however, these psychological factors are difficult to quantify to study because psychology is a qualitative factor. So, the urgent question is, is there a way to quantify the psychological index? And how to fully assess the psychological factors affecting investment returns in the most comparable and general way? Do the effects of psychology have the same level of impact over a long period of time in the history of Vietnam's stock market, or do they differ through each development cycle?

From the above urgent questions, the study focuses on quantifying and building a load factor representing psychological and economic factors by principal component analysis (PCA) method, then assessing the impact of the factor on equity investment returns through the capital asset pricing model CAPM. The research paper will be a reference for investors, helping investors understand the market psychology and macroeconomic environment factors as well as its influence on stock valuation. Thereby, making better investment decisions.

## 2 | LITERATURE REVIEW

There is a lot of research on behavioral finance, including psychological factors. The studies mainly focus on analyzing and evaluating the impact of psychological factors on the returns of stocks on the stock market. Specifically:

Market psychology, also known as "investor psychology", is not always based on fundamentals, it is a branch of behavioral finance that uses results from models. financial models and investor sentiment to measure and evaluate the impact of sentiment on price movements and expected returns of financial assets.

Huang et al, (2013) propose to construct a new market sentiment index aligned to predict stock market aggregates, based on the six variables used by Baker & Wugler, (2007) and by using The Pool Least Square (PLS) method of Kelly & Pruitt, (2013). The results of the study demonstrate that investor sentiment has greater predictive power than macro variables for the stock market. In economic terms, market sentiment's ability to predict returns comes from investors' biased beliefs about future cash flows rather than discount rates. Therefore, the use of market sentiment is necessary in financial markets and the study has contributed in part to the position of behavioral finance.

Obviously, the impact of investor psychology factors in different approaches have a certain influence on stock returns. Apergis & Rehman, (2018) by collecting data on all S&P 500 companies according to daily statistics, from 1995-2015 and 1-year US Treasury bond yields in the same period, and use the investor sentiment setting variables from Baker & Wugler, (2007) to the residuals from the CAPM model. The results from the empirical test show that investor sentiment has a significant influence on stock returns according to the traditional CAPM model. The implication of this finding is that seeing the role of investment psychology in classical financial theory can lead to an imperfect picture of asset valuations or of having a single factor influencing stock profits.

Besides psychological factors, the macroeconomic environment also has a great influence on the value of a company's stock. Chen et al, (1986) proposed specific macroeconomic factors as proxies for determining variables in APT. Since a stock's return is determined by its future cash flows and discount rate, macroeconomic factors affect future cash flows (e.g. inflation, GDP, oil prices, expenditures, etc.) consumption, etc... and discount rate (interest rate, term structure, risk premium) will directly affect

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stock returns. Through the analysis results from the ATP model, the author has proved that the macro variables really affect the stock return, instead of just a single variable which is the market risk premium like the traditional CAPM model. .

Dimitrios, (2003) examines the relationships between stock prices and macroeconomic factors in the Cypriot stock market (an emerging market). In this study, the author used the vector autoregressive (VAR) model. Macroeconomic factors are considered from 1975-1998, including (1) exchange rate, (2) industrial production, (3) money supply and (4) consumer prices (CPI). The results of the study show a close relationship between stock prices and macroeconomic factors. According to the author, there is a close relationship between stock prices and exchange rates, as the Cypriot economy is largely dependent on services such as tourism and offshore banking. The study also notes that the relationships between stock prices and industrial production, money supply and consumer prices reflect the macroeconomic policies implemented by the Cypriot monetary and financial authorities.

Chaudhuri & Smiles, (2004) examines the relationship between stock prices and changes in real macroeconomic activity on the Australian stock market between 1960 and 1998. Macroeconomic activities include consists of (1) GDP, (2) personal consumption expenditure, (3) money supply and (4) oil price (all variables adjusted for inflation). The author's research results indicate that there is a relationship between stock prices and real macroeconomic performance. The study also shows that foreign stock markets such as the US and New Zealand markets significantly influence the performance of the Australian stock market.

Dinçergök (2018) studies the relationship between five explanatory variables: (1) oil price, (2) interest rate, (3) exchange rate, (4) industrial production, (5) stock index world with the stock returns of indexes of four national indexes (BIST National Industry Sector Return Index, BIST National Service Sector Return Index, BIST National Financial Sector Index and BIST National Technology Sector Index ) in Borsa Istanbul using the average method ordinary least squares (OLS) for the period 2000-2008. The study aims to find out whether the returns of stock market indices are significantly explained by the above

macroeconomic variables? In addition, compared with the four indicators of national index returns, differences in the degree to which macroeconomic factors affect different indices are determined differently. Interest rates and exchange rates have an effect on all indicators. The world equity index has a positive effect on all industry returns except the technology sector. Oil prices did not have a significant effect on the overall returns of all four stock indexes.

Nguyen Ngoc Tu Van, (2018) and Phan Thi Nha Truc, (2019) measure the impact of six macroeconomic factors including: (1) inflation (represented by the consumer price index), (2) interest rates, (3) M2 money supply, (4) VND/USD exchange rate, (5) industrial output value and (6) foreign direct investment to the stock price indices being applied used at the Ho Chi Minh City Stock Exchange (HOSE) (including VN-Index, VN30-Index, VNMidcap-Index, VN100-Index, VNSmallcapIndex, VNAllshare-Index). The study uses Dickey - Fuller test (ADF) and least squares method (OLS) with monthly data source and sampling time frame from January 2009 to June 2014 (indicators) numbers that have not been developed in the above period are modeled according to the current criteria). The research results show that in the long term, inflation has a negative impact on the stock price indexes at HOSE; With money supply, exchange rate, interest rate and industrial output value have a positive impact on most stock price indexes at HOSE in the long run.

### **Psychology in finance and behavioral finance - cognitive influence on investor behavior**

#### *Overconfidence, sensation seeking and overtrading*

The poor investment performance of investors is partly due to poor choices in buying and selling this stock and when [buy and sell] Hirshliefer & Teoh, (2003). Another reason mentioned is overtrading. Instead of holding onto the shares they own, investors tend to sell and buy too often, which incurs unnecessary costs in the form of commissions, fees, and taxes.

#### *Underreaction, Overreaction, and Price Change Rate Index*

When a company reports its last quarter pre-tax profit, the stock price rises if the news exceeds expectations, or the stock price falls if pre-tax profits fall. While this is consistent with the efficient market hypothesis, actual observations report the opposite, that stock prices in the case of an increase in corporate earnings before tax tend to continue to rise and in case [falling in pre-tax profit] continues to decline in the following weeks. This anomaly is known as post-earnings stock price decline (Bernald & Thomas, 1989).

Barberis & Thaler, (2003) argue that, since investors are conservatively biased (Slovic & Lichtenstein, 1971), they consider new information related to their previous beliefs and therefore initially low response when receiving pre-tax profit notice. In the weeks following the announcement, the effects of the news were gradually recognized among investors buying (or selling) the stock, causing the stock's price to "drift" slowly toward its underlying present value. share. However, if a pre-tax earnings announcement is in the same direction as previous announcements, investors may over-interpret this as a trend and thus over-react to the news (Bondt and Thaler, 1985). Overreaction is more commonly observed within the first 15 minutes following the announcement of pre-tax profits, although the results of sharp price changes tend to return partially within hours (Patell & Wolfson, 1984).

#### *Diversification is not enough*

To avoid unnecessary risks, investors are advised not to "put all their eggs in one basket". The reason why the risk distribution recommendation should be related to the variability of returns: it is more likely that companies in the same industry (or country) at the same time perform worse than companies in different industries (countries) (Markowitz, 1952). However, investors often do not diversify enough. Some investors may mistakenly believe that any multi-asset portfolio will be diversified (Goetzmann & Kumar, 2008) and therefore use the primitive diversification heuristics including include multiple stocks (or stock funds) in their portfolio without considering a variant partnership. This was demonstrated in a

study by Hedesstrom et al, (2007), in which the majority of risk-averse test participants chose a portfolio of specialized funds over a multi-fund fund good form that is actually the least risky option.

#### *Impact of emotions*

Emotions arising from the evaluation of specific investment options can be used as decision signals. "Experience effect" predicts having a good (bad) feeling about something that causes people to over-associate with positive (or negative) attributes and thus choose stocks (or not stocks at all). Furthermore, only emotional forecasting can influence investment behavior. Summers and Duxbury (2012) suggest that the reluctance of investors to sell stocks that have declined in value, as shown in this decision, is due to their desire to avoid the feelings of regret associated with making them the loss. These are consistent with the "ostrich effect," which refers to the observation that investors during their time in the stock market seem more inclined to "bury their heads in the sand."

#### *Social influence*

In many areas of social life, people often follow others when making decisions. Social influence is either normative or informed (Morton & Harold B, 1955). In the case, people conform to external social pressures or internal social norms; In other cases, the motive is to obtain and use the information of others. When a group of investors follow each other to buy (or sell) the same stock, this is called a herd. Information manipulation, or an "information layer" arises when investors ignore their "private" information and instead imitate the choices of other investors because they believe that the Others will have better information.

#### *Methods of measuring market sentiment*

Market sentiment is a topic that connects outcomes from behavioral finance, assessing the impact of investor sentiment on financial markets, and fundamentals of asset pricing such as Barberis & Thaler, (2003); Baker & Wugler, (2007). Scholars

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argue that investors' behavioral patterns have a significant impact on stock market returns. To date, there are five main methods of measuring market sentiment known in the scientific literature: (i) estimation based on fundamental market indices, (ii) index survey-based sentiment, (iii) market sentiment data from specialized online sources (news analysis), (iv) Internet search behavior, and (v) non-economic factors.

## 3 | RESEARCH HYPOTHESIS

Hypothesis (H1): Psychological factors (SENT) have an impact on stock returns (RETURN) of listed companies on the Vietnamese stock market according to each cycle of the stock market. Hypothesis (H2): Economic factor (ECON) has an impact on stock returns (RETURN) of listed companies on Vietnam stock market in each stock market cycle.

## 4 | RESEARCH DATA

122 companies are listed on the Ho Chi Minh City Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX). These companies have been listed and traded since January 2009 or earlier and fully traded and not delisted since during the study period.

### Research period

The research phase is Vietnam's stock market from 2009 to 2019, going through 3 cycles and 2019 is the beginning of the 6th cycle. This study selects 3 research periods as three stock cycles. (cycle 3,4,5) in which phase 3 is the extension of the 5th cycle to the end of 2019.

## 5 | RESEARCH RESULTS

The State Securities Commission was established on November 28, 1996 and on July 28, 2000, Vietnam's stock market officially came into

with the representative index being VN Index with base value is 100 points. So far, after nearly 20 years of operation, the investment channel in the stock market has proven to be the most effective investment channel, achieving an average return of 12.5%/year.

Vietnam's stock market has grown strongly in size, continuously improved in structure, contributed to perfecting the market economy institution and promoted international integration, becoming an important capital channel importance of the economy. Vietnam's stock market currently has two stock exchanges (HOSE): Ho Chi Minh City Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX and Upcom). Derivatives stock market, born in 2017, is an effective investment and risk prevention channel. Thus, the structure of the stock market including: stock market, bond market and derivatives market has been realized in Vietnam and is constantly developing.

Thus, it can be said that after nearly 20 years, Vietnam's stock market has not only developed rapidly in terms of "quantity", but also has markedly improved in terms of "quality". Vietnam's stock market is increasingly affirming its role and position in the economy, being an important capital mobilization channel for investment in socio-economic development.

### Result of analysis of psychological load factor (SENT)

In each research period, the data constituting the sentiment index has changed sharply, in which stage 3 is the outstanding growth, this is consistent with the reality of Vietnam's stock market. In terms of scale, it is the development of the number of initial public offering (NIPO) shares that grow steadily over each period as shown by the number of issues. Basically, the change of the above components has proven to be significant in part to reflect market sentiment and market sentiment will change over time for each period (stock market cycle).

*Correlation between variables***Table 1.** *Correlation between research variables*

Period	Variables	NIPO	RIPO	S	TURN	PDND
<i>Period 1</i> (2009-2011)	NIPO	1.000				
	RIPO	0.046	1.000			
	S	0.070	0.043	1.000		
	TURN	-0.144	0.353	-0.209	1.000	
	PDND	0.076	0.396	0.180	0.096	1.000
<i>Period 2</i> (2012-2014)	NIPO	1.000				
	RIPO	1.000	1.000			
	S	0.083	0.086	1.000		
	TURN	0.277	0.277	0.137	1.000	
	PDND	0.111	0.112	0.149	-0.005	1.000
<i>Period 3</i> (2015-2019)	NIPO	1.000				
	RIPO	0.212	1.000			
	S	0.245	-0.031	1.000		
	TURN	0.245	-0.076	0.100	1.000	
	PDND	0.126	-0.127	0.045	0.145	1.000

*Source: Authors***> Period 1**

The variable number of shares traded (TURN) has a negative relationship with the number of shares initially issued to the market (NIPO) and the number of additional shares issued (S). In addition, the correlation between the initial public offering (NIPO) variable and the initial public offering (RIPO) yield has the largest correlation, about 40.56%. However, in general, the linear relationship of 5 variables in period 1 is not strong (less than 60%), consistent with the condition of principal component analysis.

**> Period 2**

The variable number of shares traded (TURN) has a negative relationship with the variable dividend compensation (PDND), the remaining variables have a positive relationship with each other. In general, all variables have low correlation, consistent with the conditions of principal component analysis (PCA) and no autocorrelation

between independent variables occurs. However, the correlation coefficient between the NIPO variable - the number of shares issued for the first time and the variable RIPO - the yield on the initial shares issued to the market is very high, almost equal to 1, which can be explained in the following analysis. In the second period from 2012 to 2014, the number of new shares issued for the first time to the market is very small, specifically, only April 2014 and September 2014 have new shares issued for the first time the rest of the month, NIPO is equal to 0. When the number of shares initially issued to the market (NIPO) = 0 leads to the yield on the initial public offering (RIPO) also = 0. Therefore, the correlation coefficient of the NIPO variable and the RIPO variable in period 2 is so high (approximately 1).

**> Period 3**

In stage 3, the correlation between variables is generally not significant. The correlation between the number of shares traded (TURN) and the number of initial public offerings (NIPO) is 24.53% and is also the highest. In addition, the pairs with negative correlation are dividend premium (PDND) and initial stock yield (RIPO); yield of shares issued for the first time and number of additional shares issued (S); yield of initial shares issued (RIPO) and number of shares traded (TURN). Therefore, the linear relationship of the variables is suitable for the condition of principal components analysis.

**The results of the main components analysis (PCA) to build the Market Sentiment index**

Based on the PCA principal component analysis, it can be concluded that the market sentiment index is affected by 4 factors out of a total of 5 factors according to the study of Baker & Wugler (2007) when applied to the Vietnamese market. Moreover, the impact of factors in each period is different. From PCA analysis, the first principal of all components has an eigenvalue greater than 1 and explains the high total variance extracted for the entire data set. Therefore, the market sentiment index in the Vietnamese stock market is expressed by the value of the first principal component when analyzing the PCA for each period.

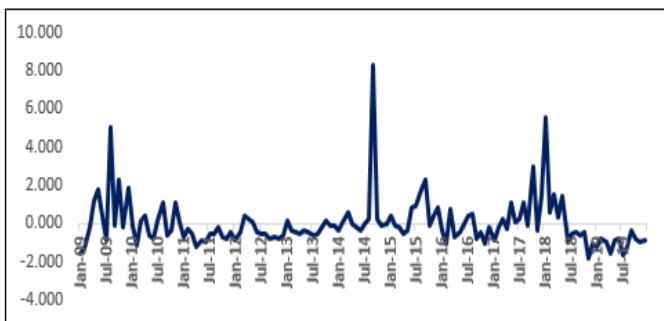
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$$\text{Period 1: } \text{SENT1} = 0.675\text{RIPO} + 0.047\text{S} + 0.484\text{TURN} + 0.555\text{PDND}$$

$$\text{Period 2: } \text{SENT2} = 0.660\text{NIPO} + 0.660\text{RIPO} + 0.134\text{S} + 0.332\text{TURN}$$

$$\text{Period 3: } \text{SENT3} = 0.611\text{NIPO} + 0.462\text{S} + 0.527\text{TURN} + 0.369\text{PDND}$$

Using the PCA method, the author has built the SENT market sentiment index. The volatility of SENT is shown in the following figure:



Source: Authors

**Figure 1:** Graph depicting the volatility of the SENT . index

The market sentiment index had the strongest impact in mid-2014, during the period when the market was gradually recovering. The most negative impact of market sentiment was in the early years of 2009 and 2019, with the SENT index approximately negative 2 (-2).

### Result of load factor analysis by economic factor

Similar to the quantitative data showing the psychological factor (SENT) in the study, the macroeconomic factors for the representative load factor ECON are divided into three phases according to the stock market cycle. Accordingly, 6 variables were included in the quantitative analysis including: (1) Deposit yield (DR), (2) M2 money supply (BM), (3) VND/USD exchange rate (EXR), (4) Gold price in VND (GOLD), (5) Consumer Price Index (CPI) and (6) Industrial Production Index (IP).

There are obvious fluctuations in the change in each macroeconomic indicator corresponding to the development of the stock market. The decrease in

deposit yield (DR) in three phases along with strong fluctuations in the money supply (M2) is a clear sign for each government policy in the monetary policy to stabilize the economy. While price indexes, including the consumer price index (CPI), the exchange rate index (EXR) and the gold price index (GOLD), represent the overall market reaction, along with the industrial production index. Industry (IP) represents the results of government policies.

**Table 2.** Correlation analysis between the component variables constituting the economic load factor

Period	Variables	DR	BM	EXR	GOLD	CPI	IP
Period 1 (2009-2011)	DR	1					
	BM	-0.363	1				
	EXR	-0.025	0.1549	1			
	GOLD	-0.07	0.1074	-0.011	1		
	CPI	-0.07	0.0458	-0.01	0.4712	1	
	IP	0.0192	-0.102	-0.28	0.1343	-0.021	1
Period 2 (2012-2014)	DR	1					
	BM	0.2951	1				
	EXR	0.0322	-0.063	1			
	GOLD	-0.012	-0.225	0.3364	1		
	CPI	-0.098	0.182	-0.187	-0.297	1	
	IP	-0.094	-0.104	-0.557	-0.024	0.0845	1
Period 3 (2015-2019)	DR	1					
	BM	0.2481	1				
	EXR	-0.057	0.1342	1			
	GOLD	0.0114	0.1906	0.0624	1		
	CPI	-0.007	-0.138	-0.197	0.0247	1	
	IP	0.0454	-0.085	-0.323	-0.335	0.3259	1

Source: Authors

### PCA main component analysis results of economic load factor

After the PCA analysis and through the steps of eigenvalue, eigenvector, loadingscore and KMO tests, the economic load factor is built on six component variables, including: deposit interest rate (DR), money supply M2 ( BM), exchange rate (EXR), gold price (GOLG), consumer price index (CPI) and industrial production index (IP). The load factor model for each stage is shown as follows:

$$\text{Period 1: } ECON1 = -0.424DR + 0.458BM + 0.149EXR + 0.55GOLG + 0.532CPI - 0.059IP$$

$$\text{Period 2: } ECON2 = 0.05DR - 0.189BM + 0.613EXR + 0.463GOLD - 0.403CPI - 0.457IP$$

$$\text{Period 3: } ECON3 = 0.052DR + 0.339BM + 0.458EXR + 0.378GOLD - 0.425CPI - 0.59IP$$

## Model results to evaluate the impact of psychological factors on stock returns through the CAPM

### Correlation analysis between variables in the model

Through three research periods over a period of 11 years, it can be seen that the average value of the stock risk premium and market risk indicators tends to decrease, and at the same time the narrowing of the deviations. Benchmarks show that RIRF and RMRF tend to be less volatile over time. Besides, the minimum value of CAPM variables (RIRF and RMRF) increased, confirming a positive sign in the stock market when investing in this market showed signs of being safer. However, in the second stage, the maximum (maximum) values at RIRF and RMRF are the smallest, which proves that this stage, investment movements in the market are not as explosive as in the previous two periods. The mean values of SMB and HML fluctuate not much in all 3 periods. The standard deviation of SMB fluctuates strongly at period 1 which is a remarkable point in descriptive statistical analysis.

The impact model of psychological factors and economic factors on stock returns through the CAPM model is shown as follows:

$$\text{Period 1: } R_i = r_f + 0.879 * (r_m - r_f) + 0.03SENT + 0.006ECON$$

$$\text{Period 2: } R_i = R_f + 0.428 * (R_m - R_f) + 0.001SENT + 0.001 ECON$$

$$\text{Period 3: } R_i = R_f + 0.874 * (R_m - R_f) + 0.006SENT + 0.005 ECON$$

## 6 | DISCUSSION

Looking at the model, it can be seen that the psychological variables all have a positive effect, which is reflected in the fact that the regression coefficients of the equation all have positive signs:

**Number of Initial Public Offerings (NIPOs)** has a positive sign, showing the positive impact of IPOs on the SENT sentiment index. This shows that investors trust the information that a company issues shares for the first time in the market. This finding is consistent with the study of Baker and Wurgler (2006) in the US stock market.

**The yield on initial public offering (RIPO)** has a positive sign similar to the NIPO variable, indicating that investors are often willing to pay a higher price for IPO shares than the underlying value.

**The number of shares issued for the first time on the market (S)** has a positive sign, showing a positive market sentiment because companies believe in the operating policy of the stock exchange and choose to raise capital by issuing more shares stocks on the market.

**The number of shares traded (TURN)** has a positive sign, showing that liquidity has a positive meaning for investor sentiment.

**Dividend premium (PDND)** has a positive sign, showing that in Vietnam's stock market, particularly on the Ho Chi Minh City Stock Exchange, investors tend to prefer paying dividends. This is in contrast to the study of (Baker & Wugler, 2007) who researched in the US market and has similar results with the study of Phan Thi Nha Truc, (2019) who researched the Vietnamese market.

### The impact of each component on the market factor

The market sentiment index model through three periods can be seen, the NIPO variable, the RIPO variable and the PDND variable affecting SENT in 2 periods, the other two variables, S and TURN affecting SENT in all 3 periods paragraph.

**The NIPO** variable affecting SENT tends to decrease from period 2 to period 3 (from 0.6602 period 2 to 0.6105 period 3). Compared with other variables, NIPO is a variable that has a great influence on SENT. Thus, it can be seen that investors not only pay much attention to the yield of shares issued for the first time to the market but also pay much attention to the number of shares issued for the first time to the market.



*The RIPO* variable affecting SENT tends to decrease slightly from period 1 to stage 2 (from 0.6752 stage 1 to 0.6601 period 2). However, if we look at the whole, we can see that RIPO is one of the variables that have the most impact on SENT. That shows that the yield of the initial issue stock has the biggest impact on the market sentiment index of the 5 studied variables.

*The number of additional shares issued (S)* is getting more and more attention from investors as this variable tends to increase significantly from period 1 to period 3. Specifically, the number of additional shares issued only affects small to SENT in phase 1 is 0.0473, then in stage 3, the number of additional shares issued impacting SENT is 0.462. This result is completely consistent with the previous analysis on the evolution of the macro-economy, which has been gradually increasing in about 11 years and investors' attitude towards new issuance (including further issuance and initial public offering (IPO)).

*The number of shares traded (TURN)* is also one of the variables investors are interested in when there is an increasing trend from period 1 to stage 3. Specifically, the number of traded shares affects SENT in period 1 is 0.4841 increasing to 0.5271 in period 3. Like variable S, variable TURN (representing market liquidity) is also a factor affecting market sentiment in all three periods study. And it is also the most basic and clearest indication of how sentiment is playing out in the stock market. To ensure transparency and balance in all observations during the study period, market liquidity (TURN) was measured as the total trading volume in the observation spent by the total number of shares outstanding. on the capital market.

*Dividend premium (PDND)* impacting SENT tends to decrease from period 1 to period 3 (from 0.5545 period 1 to 0.3687 in period 3). This downtrend shows that investors are gradually paying more attention to the number of additional shares issued and the number of shares traded on the market instead of paying dividends of the company.

**Comments on the impact of psychological and economic factors on stock investment returns on Vietnam's stock market**

Through the analysis of psychological factors and the impact model of SENT on investment returns of all three periods, it can be concluded that the market sentiment index is statistically significant for both models valuation is CAPM.

Through the analysis results, it can be said that the results of the models are an extension of the traditional capital asset pricing model (CAPM) when it is proved that the psychological factor (represented by the psychological SENT) has an impact on return on investment (Ri). Beta coefficient (which determines the sensitivity of stock returns to market volatility) tends to decrease in three stages. Thus, when looking at the results of model analysis by panel data for 122 companies observed during the 11-year research period (2009-2019), it can be concluded: at stage 1, the coefficient The beta of 122 research companies is close to the market beta coefficient, proving that the coverage of the observed objects is close to covering the entire stock market. The results of this analysis are consistent with the data selection condition of the study. In the 2nd and 3rd stages, the beta coefficient is strongly reduced, showing that the observed objects gradually have a smaller and narrower impact compared to the stock market for the following years. This is a normal phenomenon and is consistent with the laws of market movement. More and more large-scale companies are listed, and liquidity will be concentrated in prominent and large-cap companies. Since the launch of the VN100 index, a decrease can be seen in the number of 122 companies observed in the above index. Therefore, along with the ability to cover the market, the coefficient of determination of the model also tends to decrease.

**Table 3:** Number of companies in 122 companies studied in the VN100 index period 1 from 2015 to 2019

Year	2015	2016	2017	2018	2019
Number of companies under VN100	54	49	40	38	35

Source: HNX&HOSE

Firstly, the market has psychological and economic factors and has psychological impact economic factors (expressed through psychological factors and economic factors) to investment returns share.

Second, psychological factors and economic factors have different effects on stock valuation votes in three different periods, caused by downsizing and market power of the observed subjects.

Third, psychological factors have a positive impact on large companies. This can appear through stages 1 and 2 when the ability of companies to cover the market high company. Besides, market sentiment negatively affects small companies. This is shown through stage 3 when the ability of companies to cover the market. The companies in the study are narrowed down to the number of companies in the list VN100 books have decreased sharply over the years (from 2015 there were 54 companies to 2019 there are 35 companies on the VN100 list).

Fourth, the volatility of economic factors reflects the economic context through which impact on stock returns.

of decisions in the investment process of investors cannot be based on standard financial theories but must be based on theories of behavioral finance. Thus, from the evidence that is clearly confirmed on the model and the theory from the development on the Vietnamese stock market, the study makes some recommendations to develop the Vietnamese stock market for the parties. Related topics include: (i) Individual investors and (ii) Policy recommendations to develop a high-class and integrity stock market system.

### **Recommendations for individual investors**

#### *Build a reasonable valuation method*

The first prerequisite when participating is that individual investors must improve their understanding of the stock market to equip themselves with basic knowledge before investing. In addition, it is necessary to improve the ability to analyze, evaluate and develop an investment philosophy to avoid investment following the crowd.

#### *Controlling emotional factors in investing*

All individual investors need to pay attention and identify their own psychological factors when participating when investing. Market sentiment is a factor that affects stock prices. The behavior of stock investors is influenced by emotional factors. Therefore, in order to be successful in the stock market, besides equipping with standard financial knowledge, investors need to have understanding of behavioral finance or emotional finance to control emotions in their investment decision-making process, as well as being able to identify deviant emotional factors that are common in the market such as:

Avoid “overconfidence”: Overconfidence in investment behavior is also the main cause of bubbles in the stock market and the risk incurred by investors will be high.

## **7 | CONCLUSIONS AND RECOMMENDATIONS**

Through the results of quantitative analysis throughout the study, it can be confirmed that the Vietnamese stock market has psychological and economic factors, these factors have a clear impact on the return on investment in stocks on the exchange. Therefore, this proves that investors in the Vietnamese stock market are irrational, just as the Vietnamese stock market is imperfect. This implies that the explanation

Avoiding the “allocation effect”: Investors have a psychological tendency to dislike losses, leading to often selling stocks that have increased rather than sold stocks that have fallen.

Avoid "deviant depending on reference price": Investors should avoid being too dependent on a reference price or when forecasting market trends too much focus on historical developments will lead to mistakes in making investment decisions.

#### *Enhancing the capacity of individual investors*

Constantly improving knowledge from practical lessons and past experiences is the most important factor to help individual investors succeed in the stock market. Individual investors need to develop an investment philosophy to avoid the phenomenon of investing in the crowd.

#### ***Policy recommendations***

The study has clearly demonstrated the impact of psychological factors on the stock market. Therefore, it is absolutely necessary for the Government and competent parties to recognize to promptly implement reasonable policies to develop the stock market. Therefore, state management agencies need to:

*Completing the legal framework in the financial sector, ensuring the agreement between financial regulations and other relevant regulations.*

When a legal corridor is completed, many benefits will be achieved. Investors, especially individual investors, will increase their confidence in a healthy and developed market, reduce irrational decisions that come from lack of information, or fake news, and even current events price objects of some objects in the market. The stock market develops and will positively affect all economic sectors in society.

*Establish an agency to protect individual investors and enhance transparency in the Vietnamese stock market*

Decentralizing supervision activities to the Stock Exchanges, the State Securities Commission only supervises trading members.

Separation of direct supervision for compliance with the law and indirect monitoring of unfair transactions.

*Renovating the policy of price fluctuation range and short selling policy*

In the long term, remove the price fluctuation range and perform a market circuit breaker if there is a strong fluctuation. This solution will prevent deviations in investors' behavior, forcing them to consider and analyze carefully before making decisions. Besides, according to each market movement and cycle, different circuit breaker amplitudes can be applied for each market period.

*Continue to further strengthen policy messages*

It is necessary to form different communication channels so that the Government can capture investor sentiment at different times through surveys and surveys so that it can collect and promptly reflect changes in sentiment investors' management, thereby implementing appropriate policies to regulate the market.

*Strengthen market supervision to identify complex psychological trends that are likely to cause bad developments in the financial markets.*

It is necessary to improve the capacity of supervisory staff and modernize the technical and technological infrastructure, especially the application of market management software, thereby, contributing to further improving the quality of the company forecast work.

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