

Are Foreign Investors Smarter than Domestic Investors? Empirical Evidence from Indonesia

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Abstract—The existence of different views on the superiority and dominance of foreign investor to domestic investor has been an interesting issue in behavioral finance. This study aims at empirically comparing the advantages and disadvantages of the foreign investor to the domestic investor in term of information, behavior and performance. For this purpose, weekly stock trading data over the period 2014 – 2015 are utilized and testing using independent t-test. The study found that advantage of information and investor's behavior between foreign and domestic investor did not show significant differences, but the trading performance showed a significant difference. Additionally, the study found that the absence of herding bias and investor competency in generating trade performance was due to their expertise in stock selection rather than market timing. These findings implied that both investors tended to use contrarian investment strategy than momentum strategy in trading them in the Indonesia Stock Exchange.

Keywords—Investor behavior, Information advantage, Trading performance, Contrarian strategy.

I. INTRODUCTION

There are different views on the superiority and dominance of foreign investor to domestic investor has been an interesting issue in behavioral finance, especially based on information, behavior and trading performance. The existence of some investors who know more information than others, in which this situation will influence the stock trading performance (STP). Foreign investors are considered as the ones who have more knowledge and experiences about the stocks. They are also perceived as the ones who have more capital (Grinblatt and Matti, 2000). These perceptions often make Indonesia's capital market performance become highly sensitive to the investors' mobility, while in fact there are some research that indicates the domestic investors have more advantage individually rather than the foreign ones. It is because the domestic's investors have more benefits, such as: wider knowledge related to the information needed, no language barrier problem and tolerance from the capital market regulators (Choe et al., 2005; Thalassinos et al., 2015). Besides, the lack of socialization and education about the capital market in society also caused the uneven spread of investors in Indonesia between the ones who reside in the island of Java and the others who reside outside Java. Based on these facts, it is important to have an academic analysis in which the goal is to analyze whether the informational advantage (IA) influences the STP in Indonesia's capital market.

The efforts of increasing the effectively and efficiency of the stocks transactions within the capital market by observing and examining investor's behavior (IB) become the determining factor because it will have the implication in increasing the STP. Based on this statement, various phenomena of IB need to be examined further because this behavior often makes anomalies within the capital market caused by the irrationalities of the market's reactions which potentially increase the behavior bias (BB). Various reactions which represent the IB bias include the pattern of buying and selling the stocks bought or sold by foreign investors altogether (*herding bias*) while those foreign investors are not always making right decisions, as well as IB which always follows the news to do their transactions while those news are not always correct (*noise trading behavior*). The market tends to act within the crowd (*herding*), in which the traders as well as the investors will act together to make herds. As the result, these herds will form the market's behavior (Nofsinger, 2016; Grima et al., 2017; Thalassinos et al., 2012).

The main reason of underlying this research is the lack of comprehensive researches which interactively models IB and the STP based on the IA when investors have their investment decisions within the capital market. The other reason is that there is a limited amount of the behavioral finance research based on Indonesia's capital market. This is understandable because behavioral finance is a relatively new field of study. Based on those reason, the purposes of this research is empirically compare the advantages and disadvantages of the foreign investor to the domestic investors in term of information, behavior and performance. This finding of this study showed that individual investor can greatly benefit from the application of behavioral finance to their unique situations because behavioral finance is a relatively a new concept in application to individual investor.

Furthermore, this research was made in the following order: (1) Section 2 is centered around the short description regarding literature reviews as well as the hypotheses development (2) Section 3 explains the research method (3) section 4 explains the results and discussions (4) Section 5 presents the conclusions.

II. LITERATURE REVIEW

IB determines the STP within the capital market because the rational investor's behavior (IB) will minimize the behavioral bias (BB). This behavior can be observed and examined through the behavior of stocks buying or selling within the capital market. IB in buying or selling stocks in Indonesia's Stock Exchange (IDX) represents the value believed by those investors, whether it is in the form of investors' perception or behavior related to their motives to determine the investment's timeline. Well-managed emotions and experiences will make the investors' investment decisions more advantageous than those who have knowledge but no experience in stock trading.

As capital market grows, IB will have an important role to increase the trading performance within the exchange market especially with the help of information spreads that can be fairly and quickly accessible to market players. BB is often responsible of the mistakes occurrence in stock assessment within the capital market. Ritter (2003) found that the investors in Japan, Taiwan and America suffer great loss within the countries' exchange market because of the BB, even though the market in those countries was overvalued. Fraser (2003) found that the investors' expectations in Japan and USA are naturally- bias. Tecke et al. (2016) conclude that the bias happens generally within the investors in Turkey. Bakar and Yi (2016) were also found that the BB affects the investment decision making within investors in Malaysia.

If a capital market contains of the players who act and behave well -means that they take the investment decisions based on complete information and widely spread it to all of the players-, the capital market will have an increasing performance because all of the market players will feel comfortable and safe to do their transactions without worrying about the risk of information asymmetry as well as BB. For investors who have the IA, they will gain better performance than other investors (Dvorak, 2005) especially in terms of market timing (Choe et al., 2005; Kourtis et al., 2017). In order to gain the advantageous information, investors need to work harder, smarter with a good skill of time management (Nofsinger, 2001) and have a relatively better access to the short term information. Based on these discussions, the following hypothesis is postulated: *H1: Informational advantage between foreign investor and domestic investor are significantly different.*

There are three main factors that caused human to have a tendency to deviate from standard/rational decision making process, namely: the difference of valuations to the risks, the heuristic decision making, and the tendency within human to deviate from their rationality in the same way (Kahneman and Riepe, 1998). The IB in processing and interpreting the information about revenues and expenses as well as other information will affect the stock price expectations. The change of stock market price is basically a representation of the market players' expectations reacting to the new information entering the market in which that information are predicted to influence the market stock price. An individual who reacted in a certain way to something is always based on the intention to do it and this is related to the activity which done voluntarily (*volitional*). This behaviour was based on the assumption that individual will act something rationally, explicitly or implicitly they will always think about the implications of their actions, and their intention to do something is a function from two basic determinants which are the ones related to personal factors and the other ones related to the social influence (Fishbein and Ajzen, 1975; Ajzen, 2005). (Nofsinger, 2001) thought that the intention to invest shows the valuation result of a company (*value of the firm*) which shows in the form of stock price. If the stock price is increasing, then the issuer will be perceived as the one who has good performance as well as good prospect.

The characteristic of most investors in Indonesia will also determine what factor that has an important role to the decision making process. Rational investors will try to analyze all the information gained, while less rational investors will only do their transactions or deposit their capitals based on their instinct, following other investors, and does not use detailed analysis regarding the situation as well as the sector's condition. They will even believe the mystical aspect of the investments. Based on this fact, the more rational behaviour of investors is something that really needed by market players in order to act and behave as good as possible to make their investment decisions because it will increase their investment value as well as developing the hope within the society that there will be a better trading performance in the future.

Phansatan *et al.* (2012) said that foreign investors in Thailand's capital market have more IA related to the market timing (macro), but not having the ones related to the choice of securities (micro) compared to local investors. Investors in Indonesia's capital market should use contrarian strategies which is the opposite of the momentum investment strategies to make their stock portfolios since the existing stocks are in the beginning give positive returns (*winner*) and negative returns (*loser*) will experience a reversal within the last period of the testing.

The uneven spread of investors becomes one of the challenges within the Indonesia's capital market in the future. Until now, most of the players within the capital market are usually reside within Jakarta and its surrounding areas while the investors are still centered in Jakarta. This is a challenge in increasing the amount of domestic investors by approaching those who resides outside of Java as the amount of domestic investors is still not in its optimum state. Until now, the total amount of investor within Indonesia's capital market is relatively small, which is around 0,2 percent from about 230 million people in Indonesia (IDX,

2014). With the uneven comparison between foreign investors and domestic investors, it can cause the situation in which Indonesia's capital market become very sensitive to the mobility of foreign investors. Based on these arguments, the following hypothesis is developed: *H2: Investor's behavior between foreign investor and domestic investor are significantly different.*

Trading performance refer to an achievement shown by the capital market which is related to the operational activities as well as transactions of the overall securities traded within the market, is really determined by how far the existence of IB affects the TP. This performance describes the succession of the market management and becomes the indicator of the market achievement in giving the signal to the market players that the market has experienced advancement in stock trading.

The STP tends to increase if the investors in capital market act rationally and supported by relevant information. (Dvorak, 2005) said that the combination of the IA and the skills owned by the global brokers will be able to create superior performance in Jakarta's Stock Exchange. The IB is related to how far the actions that the investors take in making their decision is based on their role as a human which represented in various type of investors based on their cognitive behaviour such as intuitive, emotional and rational (Goldberg and Nizsch, 2001). The investors' decisions are often affected by mistakes or biases which exist within every region of the capital market that can influence individual investors, institutional investors, analysts, strategists, brokers, portfolio managers, option players, exchange rate players, future players, financial executives, as well as financial commentators in various media (Shefrin, 2002).

Tecke *et al.* (2016) gave the empirical proofed within the behavioral finance that the individuals are not behaving rationally, in which this means that irrational investors can cause the market to be inefficient and the price will significantly vary from its fundamental value. The irrationality of investors will depend on the individuals' characteristics, in which this irrational behaviour will be decreased among the sophisticated investors. In order to gain information advantage, investors need to work harder, smarter and have a good time management (Nofsinger, 2016). The existence of psychological factors such as overconfidence, CB, as well as herding bias will influence the investment decision making within the capital market (Bakar and Yi, 2016). Based on these arguments, the following hypothesis is developed: *H3: Stock trading performance between foreign investor and domestic investor are significantly different.*

III. RESEARCH METHOD

A. Data and Samples

This research used secondary data of stock trading related transaction data within the period of 2014-2015 gained from IDX fact Book 2015-2016 monthly and annually editions. The chosen samples contain of 53 public companies' stocks from 506 companies registered in IDX, with three criteria as the determinants, such as : the stock should have active transactions done by both foreign investors and domestic investors, the stock must not have suspension period and the price of the stock should never reach the lowest floor price.

B. Informational Advantage

IA is the ability of the investors to gain and use better information than other investors in order to support their investment decisions so that they can create more exact and accurate decisions within the capital market. To analyze the investors' IA, the "graft" formula that was previously used by (Choe *et al.*, 2005); (Dvorak, 2005); and (Agawam *et al.*, 2009) was also used in this research with few modifications.

$$IA_{i,t} = \frac{B_{i,t}}{A_{i,t}} \text{ (Choe et al., 2005; Dvorak, 2005; Agarwal, 2009)}$$

The measurement of the IA (IA_{it}) was calculated through these three steps. The first step is to calculate the volume-weighted average price (*VWAP*) or symbolized by A_{it} . The formula is as follows:

$$A_{it} = \frac{\sum_t P_{it} \cdot V_{it}}{\sum_t V_{it}}$$

where: A_{it} = the VWAP of all the stock trading of i in the period of $-t$; P_{it} = the price of stock i within the period of $-t$ which are traded; V_{it} = the amount of stock i which are traded within the period of $-t$. Second, calculate the VWAP for every purchase and sales for each stock separately within the period of $-t$, in which the formula is as follows:

$$B_{it} = \frac{\sum_t P_{it,j} V_{it,j}}{\sum_t V_{it,j}}$$

Where: B_{it} = the VWAP for every purchases and sales for each stocks separately within the period of $-t$; $P_{it,j}$ = the price of stock i within the period of $-t$ which are traded by investor j ; $V_{it,j}$ = the amount of stock i which are traded within the period of $-t$ which are traded by investor j . Third, calculate the ratio of the information advantage, IA_{it} which indicates the comparison between B_{it}/A_{it} for every purchases or sales that shows the indicator of investors' IA. The value of this ratio will then be reduced by 1 to create an adjustment for negative ratio (Agarwal et al., 2009). If the value of $IA_{it} > 1$ for an investor's sales, it means that this investor sells above the average price on that day. The investors will be more superior to the others if those investors sell at the higher price than other investors.

C. Investors' Behaviour

IB is related to the way of investors to act in relevance with the investors' investment decision after there is a response regarding the information that they have. The measurement of the IB within the capital market is reflected from the investigation by observing how far the relationship between investment flow and market return that they have received so that it will result in their behaviour which shows whether they are investors with positive impacts or negative impacts. The measurement for this is called *Net Investment Flows (NIF)* with the formula as follows:

$$NIF_{it} = \frac{\text{Purchase Value}_{it} - \text{Sales Value}_{it}}{\text{Purchase Value}_{it} + \text{Sales Value}_{it}} \text{ (Oh et al., 2008)}$$

NIF_{it} is a ratio for the data related to ownership that makes the investors to possibly identifying the net purchase with investor i within a period of t . This net measure sometimes becomes indicative when the market is in *undervalued* or *overvalued* situation. As a result, this can reflect the ability of doing the market timing from different type of investors. The purchase value is a multiplicative result of the purchasing price with the amount of stocks bought within a certain period, while the sales value is a multiplicative result of the stocks' selling price with the total amount of stocks sold within a certain period. The positive value of NIF_{it} shows that the investors have the right market timing when doing their transactions which is buying stocks when they're *undervalued*, and selling them when they're *overvalued*. This means that the investors are following the momentum strategies in which their transactions' behaviour is following the market's movement.

D. Stock Trading Performance:

The STP of each investor will contribute to the value-added and increase the capital market. This trading performance is included as the endogenous variable. If the investors' TP is increased aggregatively, the market's performance will automatically be increased as well (Ryan and Taffler, 2006; Agarwal et al., 2009; Phansatan et al., 2012). The TP was meant to be the investors' strong point compared to the others within the market, in which this includes the ability to allocate the assets that is beyond the relative net purchase order's median of other investors' net trading value when choosing stocks. TP is the overall net result of the trades that shows implicit cash value gained from the trading activities within the interval of h -weekly from week t . In other words, the size of the TP is a result of the adjustment of the previous researches formulas so that it will be more visible whether the TP is mostly contributed from the market timing ability or stock selection, as shown by this formula.

$$\pi_t \equiv \left[\frac{Y_t^b \left(\frac{p_t^s + h}{p_t^b} \right)^{\frac{1}{h}}}{Y_t^s \left(\frac{p_t^b + h}{p_t^s} \right)^{1/h}} \right] \text{ (Phansatan et al. 2012)}$$

where, π_t = the overall net results of trading, $Y_t^b = v_t^b v_t^b$ is the adjustment median of monetary value from the purchase/sales transactions within the period of $-t$. $Y_t^s = v_t^s v_t^s$ is the adjustment of monetary value from purchase/sales transactions within the week t . v_t^b dan v_t^s = the weighted trading purchase/sales volume. p_t^b Dan p_t^s = the purchase/sales transactions' price. In conclusion, the overall net trading result which shows the positive (negative) or $\pi_t > 0$ ($\pi_t < 0$), implies that the stock buyers are more superior (less superior) than other stock sales because one of the example of a good market timing is to return before the

market shows increasing (decreasing) trends or because they're superior (inferior) in choosing the stocks within a certain time period.

In order to identify the trading results/loss for each investor caused by market timing vs the choice of stocks, the formula used is as follows: $(\pi_t) = (\pi_t^S) + (\pi_t^T)$. Based on this formula, the overall net result of the trading (π_t) includes the addition of two components which are the choice of stocks (π_t^S) and market timing (π_t^T) . When $(\pi_t^T) > 0$, it shows that the investors executed the net purchase (sales) before the market price experience an increase (decrease). Analysis model used in this study is Independent sample t-test. The independent t-test is suitable for this research because the data of mean between foreign investors and domestic investor are independent.

IV. RESULT AND DISCUSSION

The general description for the statistics of this research's results related to each variable observed can be shown in the Table I below.

TABLE I. DESCRIPTIVE STATISTICS OF THE RESEARCH'S VARIABLES

No.	Variables	Weekly Averages Within The Period of 2014 – 2015		
		Min	Max	Mean
1.	IA	-0,54547	0,435516	-0,03423
2.	IB	-0,05761	0,043506	-0,0003276
3.	STP	0,36963	1,831399	0,964495

Based on the Table 1 above, the average rate of investors' potential return based on the IA within the capital market is -3,42% during the research period. This shows that investors receive 3, 42% less than the result of stock investment supposed to be received from the market. On the other hand, the highest potential value of informational value that is possible to be reached by investors is 43, 55%, while the lowest is -54, 55%. This implies that investors are still having some difficulties to adjust themselves to the new information within the market so that their potential return rate tends to experience decrease compared to the situation when they can take advantages of those information optimally in order to support their investment decision making process. This condition shows that the investors are slow in coordinating new information which often evolves dynamically. The IB within IDX tends to not be implementing *herding* acts, which was shown by the average value of IB, -0, and 0003276. This means that the value is in a negative but nearly 0. Even though theoretically, the positive IB value shows that the IB in the capital market can follow the stock price movements accurately in order to make their investments, this research shows the opposite result in which this research creates a negative IB. It means that the IB while doing transactions in market tends to buy when it is *overvalued* and sell when it is *undervalued*. This means that *herding bias* in Indonesia's capital market is rare. Moreover, the STP within Indonesia's capital market is dominated by market timing ability shown by the average STP in the period of 2014 – 2015 amounted 0,9645, smaller than 1 (STP < 1). It shows that the investors' stock selection ability dominates the STP. The ability owned by investors regarding the stock selection indicates that most of the capital market players or investors are still using the contrarian investment strategies.

From the significant testing result of three research variables: informational advantage, investor's behavior and trading performance on the superiority foreign investor to domestic investor, the result for the three important points and hypothesis testing on each variables are shown in Table II below.

TABLE II. THE RESULT OF HYPOTHESIS TESTING WITH USED INDEPENDENT SAMPLE T-TEST

Variables	t-test	t-table	p-value	Decision
1. Informational Advantage	1,320	1,96	0,189	No Sig
2. Investor's Behavior	0,513	1,96	0,609	No Sig
3. Stock Trading Performance	4,025	1,96	0,000	Sig

First, there is no significantly different between foreign investor and domestic investor by using independent t-test, it can be concluded that there is no significant difference between foreign investor and domestic investor based on informational advantage (t-calculate is smaller than t-table, or p-value > 0,05). This finding showed that hypothesis 1 (H-1) that is formulated by statement that there is a significant difference between foreign investor and domestic investor based on informational advantage in Indonesia Stock Exchange, which does not support the premise used in this study, H-1 is rejected. It shows that that the superiority of information between foreign investors and domestic investors is the same in obtaining information access and in utilizing information in the market in the market to support their investment decisions. Thus for investors who want to excel in the market, they need to work harder, smarter and with a good skill of time management (Nofsinger, 2007; Nofsinger J.R., 2017). In addition, investors need to also pay attention that psychological factors such as conservative bias, herding can have a relationship

with investors' investment decision making in capital market. This finding contradicts the finding by Dvorak (2005) which stated that for investor who have the information advantage, they will gain better performance than other investors, whereas information plays a role in changing decision makers' beliefs (Beaver, 1998).

Second, there is no significantly different between foreign investor and domestic investor by using independent t-test based on investor's behavior, it can be concluded that there is no significant different between foreign investor and domestic investor based on informational advantage (t-calculate is greater than t-table, or p-value < 0,05). This finding showed that hypothesis 2 (H-2) that is formulated by statement that there is a significant difference between foreign investor and domestic investor based on investor's behavior in Indonesia Stock Exchange, it obtained the result which does not support the premise used in this study, H-2 is rejected. The rejection of the second hypothesis shows that in terms of their behavior most investors in the stock exchange lead to almost the same rational behavior, meaning that together they try to analyze and estimate stock prices in the most rational way. When all investors know all information in the market equally and every investor acts rationally in making investment decisions, it indicates that the capital market has shown an increase in market efficiency. Therefore, if these conditions occur in the stock market, insider trading practices conducted by investors in obtaining super normal returns is very difficult because all investors have behaved rationally and all information has been accommodated in the stock price. This finding does not support the finding of Ritter (2003) stated that there is a bias in stock trading behavior among investors, and Fraser (2003) stated that investor expectations naturally are biased (Grima and Caruana, 2017). There are three factors that cause humans to have a tendency to deviate from standard in decision making, there are the existence of different assessments of risk, the existence of heuristic decision-making, and the human tendency to deviate from their rationality in the same way (Dvorak, 2005; Kahneman dan Riepe, 1998 and Kufepaksi, 2016).

Third, the testing result on hypothesis 3 (H-3) that is formulated by the statement that there is a significant difference between foreign investor and domestic investor based on stock trading performance, it obtained the result stating that the stock trading performance significant difference between foreign and domestic investor. It is consistent with the premise used in this study. That means the H-3 is accepted (t-calculate is smaller than t-table, or p-value > 0,05). This finding showed that the stock trading performance tends to increase if the investors in capital market act rationally and supported by relevant information. Dvorak (2005) said that the combination of the information and the skills owned by the global brokers will be able to create superior performance in Jakarta's Stock Exchange. The existence of some investors who know more information than the other ones, in which this situation will influence the STP. Foreign investors are considered as the ones who have more knowledges and experiences about the stocks (Thalassinos, et. al. 2015). They are also perceived as the ones who have more capital. These perceptions often make Indonesia's capital market performance become very sensitive to investors' mobility, while in fact there are some research that indicates the domestic investors have more advantages individually rather than the foreign ones. It is because the domestic's investors have more benefits, such as: wider knowledge related to the information needed, no language barrier problem and tolerance from the capital market regulators (Choe et al., 2005; Thalassinos et al., 2015).

The finding of this study related to behavior bias in behavioral finance that application in financial management. The behavioral finance is a relatively new but growing field of study that applies behavioral psychology to economic decisions to help understand why rational people can often make irrational decisions when it comes to money and investing. Behavioral finance, a sub-field of behavioral economics, proposes psychology-based theories to explain stock market anomalies, such as severe rises or falls in stock price. The purpose is to identify and understand why people make certain financial choices. Within behavioral finance, it is assumed the information structure and the characteristics of market participants systematically influence individuals' investment decisions as well as market outcomes.

V. CONCLUSION

This finding of this research has answered three preview objectives of the study which is emperically comparing the advantages and disadvantages of the foreign investor to the domestic investor in term of information, behavior and performance. The view of some academics that foreign investors are superior to domestic investors is not yet fully proven. The results of testing hypotheses based on information excellence variables, investor behavior and stock trading performance show that only stock trading performance is significantly different while information excellence and investor behavior do not show significant differences between foreign investors and domestic investors.

There is no finding of bias herding behavior in the Indonesian capital market as well as the tendency of investor behavior in other third world countries. Stock selection investor capability is greater than market timing capabilities, and investors tend to use contrarian investment strategies in stock investments in Indonesia capital market.

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