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Effect of investors' psychology on capital market investment: An application of the theory of planned behavior

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Abstract

Nowadays, the finance arena is moving from fundamental theories and technical analysis tools towards the behavioral theories in an attempt to explain the investors' behavior in the market place. Theory of Planned Behavior is a widely used behavioral theory that can be used to predict and explain individuals' irrational behavior under several conditions. The theory states that attitude toward behavior, subjective norms, and perceived behavioral control, together shape an individual's behavioral intentions and actual behavior. This study aimed to examine the impact of investors' psychology on behavioral intention in investing in the capital market by applying this model. A self-administrated structured questionnaire was distributed for a sample of 97 investors who invested in the Colombo Stock Exchange to gather the data regarding their attitude, subjective norms and perceived behavioral control. The researchers employed both descriptive and inferential statistics to make the data meaningful of the data and measure the relationships. In addition, Cronbach's Alpha, KMO and Bartlett's tests were employed as diagnostic tests. The findings reveal that attitude has a positive impact on the behavioral intention while two other variables; subjective norms and perceived behavioral control are statistically insignificant. Hence, it suggests that attitudes have impact on the behavioral intention whereas subjective norms and perceived behavioral control do not impact on behavioral intention in investing in the capital market in Sri Lanka.

Keywords: *Attitude, investment intention, perceived behavioral control, subjective norms, theory of planned behavior.*

1. Introduction

Decision making is a complex process as it involves an analysis of diverse aspects that are likely to exist under a variety of possible circumstances. Making an investment decision is somewhat difficult because it should be a selection among many investment alternatives that

include the different degree of risk and return with different time horizons. The capital market is one of the investment routes available for the individuals and private sector which can gain long-term benefits. A capital market is a network of specialized financial institution, series of mechanisms, processes and infrastructure that, in various ways facilitate the bringing together of suppliers and users of medium to long-term capital for investments[1]. In a capital market, a wide range of investment avenues are available for the investors, namely; equity instruments, credit market instruments, insurance instruments, hybrid instruments, and derivative instruments. However, in Sri Lankan context there are a limited number of capital market investment avenues for the investors which are categorized under equity market and bond market. Investors play a critical role in the capital market by allocating their excess funds among different markets and instruments and their investment choices are motivated by different factors including social factors, demographic factors, market factors and psychological factors.

Behavioral finance is one of the novel and important branches of finance. It describes factors of human psychology and their effects on investment decisions in the financial market. It also uses the special knowledge in psychology, sociology as well as finance to explain uncommon behaviors of investors which cannot be understood completely by the traditional finance. Behavioral finance evaluates people in the real world because individual investors are ordinary people who are affected by factors of psychology and emotions. The application of psychological models into the investors' rational decision making process is an emerging area in behavioral finance (Dayaratne & Wijethunga, 2015). As it is an emerging research area, there are only a few studies that have been undertaken in Sri Lankan context. Thus, this paper aims to examine the investors' behaviour by adopting one of the famous models in psychology called Theory of Planned Behavior (TPB) which links one's beliefs and behavior to the decision making process. The TPB states that attitude, subjective norms, and perceived behavioral control together shape an individual's behavioral intentions and actual behavior which was proposed by Ajzen in 1991 as an improvement of the Theory of Reasoned Action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980).

However, explaining the human behavior is a very complicated task because people act in different ways (Ajzen, 1991). Although in traditional finance theories it assumed that investors are always rational, they make their investment choices by balancing the expected benefits and the degree of risk of particular investments. However, the validity of that assertion was subjected to serious criticisms among the stakeholders of the capital markets (Dayaratne & Wijethunga, 2015). The behavioral finance experts challenge the traditional view of rational investment decision making and believes that investors are not always rational, and induced by numerous factors, including both rational and irrational factors. The recent pieces of evidence also revealed that the irrational behavior which is guided by the psychology of the investors is one of the major influential factors for the investment decision (Dayaratne & Wijethunga, 2015).

The established financial theories content that higher the degree of risk, higher return. The stock market investment is labelled as a very riskier investment avenue which generates the greater return to the investors. Unfortunately, equity market participation not satisfactory

[1] Al-Faki (2006)

compared to the other investment avenues in Sri Lanka because most of the people seek short term benefits rather than engage in investments which generate long-term benefits. It badly influences not only for the investors' well-being but also for the entire economy. Equity market statistics represent that the 609,575 local individual participation, with only 5% - 10% active accounts which means 90% - 95% of the total accounts in the market is inactive[2]. Moreover, the equity market account holders are 2.9% of the total population which is also indicates the neutral growth of active participation during the last two years. Even though capital market investments generate long-term benefits the investors are not motivated to invest in the equity market. Thus, this study aims to examine the impact of psychological factors on capital market investments by applying the TPB for answering the questions of whether the individuals' psychological factors cause for the equity market investments in Sri Lanka.

The rest of this paper is organized as follows. The key literature on the topic is summarized in section 2. The conceptual framework of the study and the data, data collection procedure, sample selection and the econometric modeling is discussed in section 3. Section 4 documents the results derived from the econometric model are summarized in that section in tabular form with a brief interpretation as appropriate for the purpose. The conclusion based on the results is presented in section 5.

2. Review of literature

TPB is one of the key theories which can apply to predict and explain the actual behavior of individuals. It is important to review the earlier steps that led to the development of TPB. Several earlier theories contributed to the development of the TPB, and the two most important theories were the Information Integration Theory (IIT) and the Theory of Reasoned Action (TRA). The Theory of Reasoned Action was developed by Fishbein and Ajzen in 1975 and Ajzen and Fishbein in 1980 as an improvement of Information Integration Theory which was developed by Anderson in 1971. The limitations of TRA led to the development of TPB. It was proposed by Ajzen in 1985 through his article "From intentions to actions: A theory of planned behavior". The TPB can cover peoples' unconscious behavior which cannot be explained by the TRA. It upholds the key assumptions contained in the TRA, with certain modifications that allow for greater accuracy and reliability in understanding one's actual behavior. The difference between the TPB and TRA is the inclusion of perceived behavioral control in addition to attitude towards the behavior and subjective norms.

According to TPB, human behavior is guided by three kinds of considerations: beliefs about the likely consequences or other attributes of the behavior (behavioral beliefs), beliefs about the normative expectations of other people (normative beliefs), and beliefs about the presence of factors that may further or hinder performance of the behavior (control beliefs) (Ajzen, 2002) (Refer Figure 1). Simply, the theory states that attitude, subjective norms, and perceived behavioral control, together contour an individual's behavioral intentions and actual behavior. The behavioral belief in TPB is represented by attitude towards the behavior. According to Ajzen (1991), attitude toward the behavior refers to the degree to which a person has a

[2] CDS Monthly Report, 2019 April

favorable or unfavorable evaluation or appraisal of the behavior in question. There are two types of attitude, attitude towards the physical object and attitude towards behavior or performing a particular action.

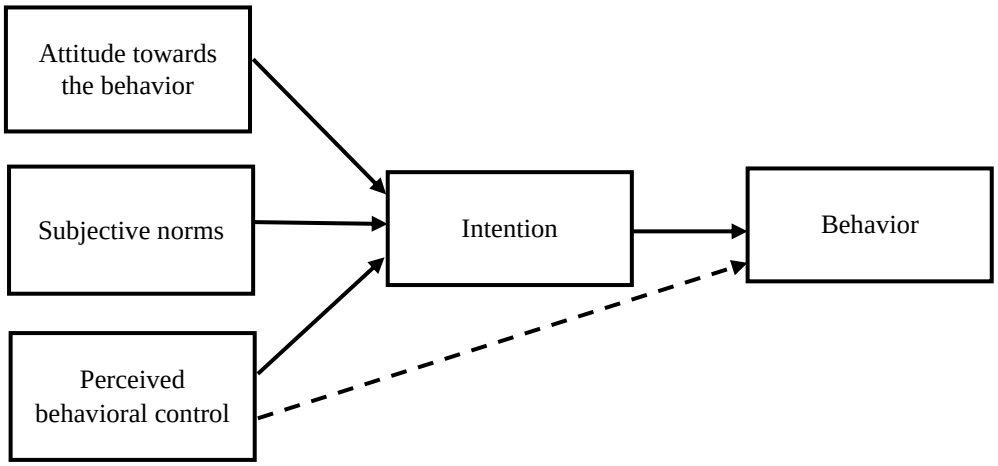

Figure 1 Theory of planned behavior

Source: Theory of planned behavior (Ajzen, 1991).

The more positive the attitude an individual has towards the object and behavior, the more likely is the behavioral intention and performance of the behavior (Gopi & Ramayah, 2007). The normative belief in TPB is represented by subjective norms. Subjective norm is an original construct from TRA that deals with the influence of social environment or social pressure on the individuals and thus on behavioral intention (Gopi & Ramayah, 2007). Ajzen (1991) defined subjective norms as the perceived social pressure to perform or not to perform the behavior. This refers to the belief about whether significant others think he or she will perform the behavior. Simply, subjective norm refers to the influence of one's peers, family, friends and important others in performing the behavior. The control belief in TPB is represented by perceived behavioral control. According to Ajzen (1991), perceived behavioral control refers to people's perception of the ease or difficulty of performing the behavior of interest. Perceived behavioral control is a function of resource availability and ones' confidence towards perform an action. It means behavioral intention or actual behavior increases when individuals perceive they have more resources and confidence. The central factor in the TPB is the individual's intention. Ajzen (1991) assumed that intention to capture the motivational factors that influence a behavior and indication of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior. Generally, the strong the intention is, the more likely the behavior will be performed.

The TPB model is a very powerful and predictive model for explaining human behavior. Phan and Zhou (2014) emphasized that over the past years; the TPB has been validated and experimentally supported by hundreds of studies. Applicability of TPB has been studied by many psychologists, sociologists and economists from different perspectives. The theory provided greater support for the study a wide range of behavioral intention in finance and investments. Not only finance but also many other disciplines including Marketing, Medical Science, Social Science and Information Technology. Sondari and Sudarsono (2015)

conducted a study using the TPB to predict intention to invest in Indonesia using partial least square (PLS) showed that attitude towards investment and subjective norms have significant influence towards the intention to invest.

Similarly, Alleyne and Broome (2011) also investigated that the factors which influence the investment intention of potential investors and utilized Sitkin and Weingart's theory of risk propensity (1995) as predictors of investment intention in addition to the TPB. However, they found that all variables of two models such as attitudes, subjective norms, perceived behavioral control and risk propensity are significant predictors in investment intention. On the other hand, the TPB framework has been successfully applied in a wide range of investment avenues including mutual fund investment, gold investment, real estate investment and stock investment. Conversely, the TPB is used by Lam (2008) to investigate factors affecting on investments in Mutual Fund. Based on the analysis, it was found that attitude towards behavior, past behavior and subjective norm have a positive influence on investors' intention to invest in the mutual fund. Further, Lam (2008) found that both past behavior and intention have positive significant influence on investors' actual investment behavior. Moreover, it has found that perceived behavioral control is not a significant contributor to both behavioral intention and actual investment.

Interestingly, Gopi and Ramayah (2007) utilized the TPB to predict intention on online trading. The study proved that positive impacts of attitudes, subjective norms and perceived behavioral control on behavioural intention to online share trading and emphasized that TPB could be a useful model for explaining changes in behavioural intention and actual usage. Similarly, Lee (2009) contributed to behavioral finance by conducting a study on adoption of online stock trading in Taiwan and it developed a theoretical model to explain and predict the stock traders' behavioral intentions to use online trading by using the concepts of perceived benefit, perceived risk and trust and integrating the Technology Acceptance Model (TAM) and TPB models. The findings illustrated that the proposed model has good explanatory power in predicting customers' intention to use online trading. In another research conducted by Bhuvanam and Mohan (2015) on online share trading found that perceived behavioral control, subjective norm have a direct positive relationship with behavioral intention to use internet stock trading. Further, it emphasized that attitude is a weak predictor and attitude has a positive insignificant impact on behavioral intention.

Shanmugham and Ramya (2012) conducted a study to identify the influence of social factors on individual investors' trading behavior in the stock market with the support of TPB. It concluded that a strong positive correlation between attitude, perceived behavioral control and intention towards trading whereas subjective norm is negatively related with intention towards trading behavior. Individual's investment intention is significantly affected by his or her attitude towards investment, subjective norm and perceived behavioral control (Phan & Zhou, 2014). And also Phan and Zhou (2014) proved that individual investment intention is guided by four psychological elements, namely overconfidence, excessive optimism, psychology of risk and herd behaviour and each of the element plays as a determinant of attitude toward behaviour. Ezama, Scandroglio and de Liano (2013) provided evidence of attitude, perceived behavioral control have direct positive significant influence to investors' intention to invest in stock market while subjective norms have not made significant influence. Moreover, they

emphasized that, TPB model seems an efficacious tool for explaining and predicting the individual investors' behavior in the stock market. TPB is applied to analyze wide range of marketing behavior and application of TPB in behavioral intention in investment decision is still lacking in the Sri Lankan context. Dayaratne and Wijethunga (2015) employed TPB to analyze the impact of investors' psychology on behavioral intention in investing in the capital market. They suggested that there is a significant impact from subjective norms on the behavioral intention to buy shares in Colombo Stock Exchange (CSE) while attitude and perceived control behavior not impact on behavioral intention in investing CSE.

When referring to the empirical literature, it reveals that TPB has a wide range of applications. However, in Sri Lankan litreture, there are no enough literture exists on behavioural investigation of capital market investments. Thus this study aims to bridge this gap through applying TPB in the context of Sri Lankan capital market because researchers emphasized that TPB is a successful and efficacy tool to explain and predict individual investors' behavioral intention. Thus, this study also aims to examine the impact of psychology on behavioral intention in investing in the capital market by utilizing TPB.

3. Methodology

The TPB states that attitude toward behavior, subjective norms, and perceived behavioral control, together figure out an individual's behavioral intentions and actual behavior. The researchers derived conceptual framework from the TPB (Ajzen, 1991) as follows. This study utilizes three independent variables (attitude towards the behavior, subjective norms, and perceived behavioral control) for measuring the psychological factors and investment intention as the dependent variable.

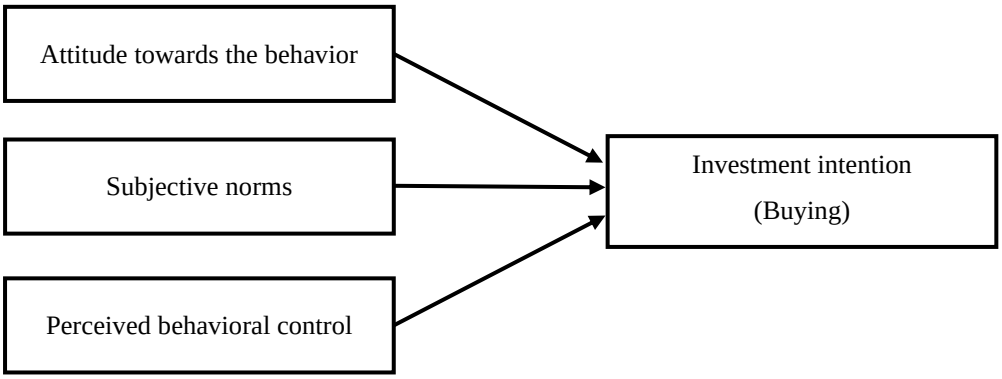

Figure 2 Conceptual framework

Source: Adopted from the theory of planned behavior (Ajzen, 1991).

The data for this research were fundamentally gathered through a survey by distributing a structured questionnaire. The questionnaire consists with two parts to fulfil the objectives of the study. First part covered the demographic information and investments portfolios of individual investors. The second part of the questionnaire aimed to measure psychological factors. The researcher utilized seven-point Likert scale with 1 for strongly unlikely to 7 for strongly likely as the measurement scale to evaluate the degree of investor's agreement with

the psychological factors on their investment intention. However, the dependent variable (intention) was measured by using a categorical scale. Most specially, the questionnaire was heavily based on the questionnaire developed by Dayaratne and Wijethunga (2015) in their study.

The researchers distributed the questionnaire to individual investors through Registered Investment Advisors (RIAs) in the CSE and directly distributed the questionnaire to the investors by visiting the brokering firm premises itself. In addition, the questionnaire was emailed to the identified investors who have already invested in the CSE. In sum, 1000 questionnaires were distributed to investors during May-June 2019 and 97 active investors responded to the distributed questionnaire.

This study utilized a probit regression analysis to achieve the objectives of the study because the probit model is a popular measurement for an ordinal or a binary response model. The Probit model regression is as follows;

$$P_r = (Y = 1/x) = \Phi (x^1 \beta) \rightarrow (1)$$

Where,

P_r = Probability

Φ = Cumulative distribution function of the standard normal distribution

B = Maximum likelihood

4. Results and discussion

In this study, the sample comprises with 97 active investors who respond to the questionnaire. 76 of the respondents were male taking up to 78.4% of the total sample. Most of them were degree holders (49.5%) and among the responders, 62 were private sector employees and 14 from the government sector, 13 and 8 from semi government, self employment in respectively. 47.4% of the sample belonged to the annual income category of below Rs. 150,000 and the majority of the respondents have investment experience more than 10 years.

Cronbach's Alpha was employed to measure the internal consistency of the questionnaire. Guilford (1965) suggested that Cronbach's Alpha value should take more than 0.7 for fulfilling the internal reliability questionnaire. In this study, Cronbach's Alpha value is 0.815 for dependent variable and 0.75, 0.810, 0.765 for attitudes, subjective norms and perceived control behaviour in respectively which is greater than 0.7. Thus, it implies that the highest internal consistency in the questionnaire items and it emphasized that the researcher could use for further analysis. The KMO and Bartlett's Test is utilized to measure the sample adequacy of the study. Kaiser (1974) recommended that acceptance level of the sample adequacy is >0.5 and the value between 0.5 and 0.7 suggests as average adequacy, 0.7 and 0.8 interprets as good, value between 0.8 and 0.9 concludes the sample adequacy as great and value above 0.9 indicates a superb sample adequacy. In this study, it indicates that the KMO and Bartlett's Test value of dependent variable is greater than 0.8 which falls into the category of great sample adequacy and all independent variables indicate sample adequacy as good and it is considered as an acceptable sample for further analysis.

According to Table 1 the results indicated that all four variables have a significant positive correlation with each other variables. Among all variables, the correlation between attitude and subjective norms takes the highest value as a moderate positive correlation, which represents the coefficient of 0.651 at 0.01 significant levels. There is a low positive correlation in between investment intention and attitudes (r = 0.352). The subjective norms is also positively associated with investment intention, which represents low positive correlation (r = 0.235). Similarly, the third independent variable, perceived behavioral control also has a low positive correlation (r = 0.232). Further, attitude and perceived behavioral control (r = 0.473) have low positive correlation and subjective norms and, perceived behavioral control have moderate positive correlation, which represents as r = 0.597.

Table 1
Results of Pearson's correlation analysis

		Intention	Attitude	Norms	Control
Intention	Pearson Correlation	1	0.352**	0.235*	0.232*
	Sig. (2-tailed)		0.000	0.020	0.022
Attitude	Pearson Correlation	0.352**	1	0.651**	0.473**
	Sig. (2-tailed)	0.000		0.000	0.000
Norms	Pearson Correlation	0.235*	0.651**	1	0.597**
	Sig. (2-tailed)	0.020	0.000		0.000
Control	Pearson Correlation	0.232*	0.473**	0.597**	1
	Sig. (2-tailed)	0.022	0.000	0.000	

Note: N = 97.
***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*

In order to examine the impact of psychology on behavioral intention in investing in the capital market, the researchers utilized probit regression analysis. The statistical output of probit regression is presented in Table 2.

Table 2
Results of the probit regression

	Delta-method					
	dy/dx	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Attitude	0.1085	0.0403	2.69	0.007	0.0295	0.1876
Norms	-0.0140	0.0471	-0.30	0.766	-0.1065	0.0784
Behavioral control	0.0341	0.0392	0.87	0.385	-0.0427	0.1110

Since, the Chi square of 12.91 with P value of 0.0048 indicated that whole model is statistically significant at 0.05 significant level. The results emphasized that attitude is statistically significant whereas other variables are statistically insignificant. It means that if the average level of investors' attitude increases by an infinitesimal amount, the probability for the investment intention taking the value one rises by 10.85%. It verifies that if someone

has a favorable attitude regarding the capital market he or she is more tend to invest in the capital market. A study conducted by Phan and Zhou (2014) aims for exploring factors influencing on individuals' investment behavioral intention in the Vietnamese stock market and it concluded that individual's investment intention is significantly affected by his or her attitude towards investment. The findings of this study also support the argument of Phan and Zhou (2014) that attitude towards investment has the strongest impact compared to other independent variables.

However, the findings are inconsistent with a study conducted by Dayaratne and Wijethunga (2015). They found that subjective norm significantly influenced the investing in the CSE. Further, they emphasized that opinion of peers, opinions of other important parties, information released by media significantly affect on investors' intention towards the stock market investments.

5. Conclusion

The study aims to investigate the impact of investors' psychology on their behavioral intention in investing in capital market in the Sri Lanka. This study employed the TPB which was proposed by Ajzen (1991) as the theoretical base. The probit regression model is used to achieve the desired objectives. The results revealed that attitude has a significant impact on behavioral intention in investing in the capital market. However, subjective norms and perceived behavioral control do not have significant influence towards behavioral intention. The findings of this study revealed that attitude is the only variable that significantly impacts on investors' behavioral intention in investing in capital market while other two variables are insignificant. Prior studies also suggested that favorable attitude towards investment intention can be formed by highlighting the advantages attached with that investment. The main goal of the CSE is encouraging the investors to invest in the stock market especially by altering the attitudes of prospective investors who still panic in stock market investments. Thus, in order to enhance the awareness regarding the capital market investments, the CSE needs to organize more events and programs to the public because it will impact to change the attitude of prospective investors. Ultimately, it will improve the investors' favorable attitude towards the stock market investments.

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