

RESEARCH ARTICLE

The trichotomy of Needs Theory and irrational investor behavior through investor category: evidence from Sri Lanka

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Abstract: The trichotomy of Needs Theory has been applied in various studies to analyze psychological features across different professions. However, there is a notable gap in the literature regarding its impact on irrational investor behavior. This study presents a groundbreaking contribution by exploring how individual investors' unique characteristics, defined by the trichotomy of Needs Theory, impact their stock market decisions. This research offers crucial, interdisciplinary insights into the psychological principles driving human behavior, making it significant for market analysts, investors, stockbrokers, and decision-makers. Utilizing David McClelland's trichotomy of Needs Theory, the study assesses the behavioral aspects of individual investors. It investigates the impact of said theory on irrational investor behavior at the Colombo Stock Exchange, with the investor category as a moderator. Data was collected through a structured questionnaire from a sample of 386 investors at the Colombo Stock Exchange using systematic random sampling. Structural Equation Modeling was employed to test the hypotheses. The findings indicate that both the need for affiliation and the need for achievement significantly increase irrational investor behavior at the Colombo Stock Exchange. Further, the results embrace a significant positive moderation effect from the investor category on the relationship between the need for affiliation and irrational investor behavior. Moreover, the investor category positively impacts the relationship between the need for achievement and irrational investor behavior in the Colombo Stock Exchange.

Keywords: Investor behavior, needs theory, investment decision, investor irrationality, Colombo stock exchange.

INTRODUCTION

Traditional thoughts in the discipline of finance which elaborate the investors' behavior were mainly reliant upon widely acclaimed theories such as the modern portfolio theory (Markovitz, 1952) and efficient market hypothesis (Fama, 1980). Moreover, traditional finance theories presume that markets are efficient; hence, market prices reflect and embrace all relevant and available decision-making information (Bloomfield, 2010). However, it has been demonstrated that several traditional financial assumptions are less reliable and impractical when used in the stock market decision-making process (Jain *et al.*, 2015). The bounded rational theory (Ricciardi & Simon, 2000) has proposed a few limitations as an alternative to assuming perfect information and rationality of individuals (Verma & Rangnekar, 2015). Therefore, many researchers asserted that instead of making the promised rational investment decisions, institutional as well as individual investors act irrationally while making decisions about their investments (Ganesh *et al.*, 2018) and such decisions may be influenced by their individual traits (Muktadir-Al-Mukit, 2022).

Behavioral finance attempts to acknowledge and describe observed investor and market behaviors (Barberis & Thaler, 2003). Observed behaviors often differ from the idealized behaviors assumed under

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traditional finance theories. According to behavioral finance, markets are not always observed to be efficient, whereas anomalous markets can be observed (Ritter, 2003). Behavioral finance argues that some financial phenomena can plausibly be understood using models in which some investors are not entirely rational (Barberis & Thaler, 2003), contrary to what has been explained in traditional finance.

The Colombo Stock Exchange (CSE), the market base of this study, has 294 companies as of August 31st, 2023, with a market capitalization of Rs. 3,964.04 billion. CSE is a frontier market smaller than an emerging market but more developed than countries considered 'least developing countries' (Abeysekera & Nimal, 2017). Uninformed investors make their decisions based on market sentiment, creating irrational price volatility (Hewamana *et al.*, 2022; Aggarwal & Mohanty, 2018). Buddhika (2020) emphasizes that individual psychological aspects play a significant role in shaping investors' investment decisions in the CSE. The critical area of psychology in a stock market is how the human aspect affects stock market decision-making. Hence, to address the psychological aspect of an individual investor, this study applied the Trichotomy of Needs Theory of David McClelland (1961). McClelland's Needs Theory (1961) is dominant in human psychology, organizational behavior, and human resource management with a strong emphasis on the psychological aspect of decision-making (Slocum & Hellriegel, 2009; Steers & Braunstein, 1976). The Trichotomy of Needs Theory (McClelland, 1961) is a motivational model that attempts to explain how the needs for power, affiliation, and achievement affect managerial decision-making (McClelland *et al.*, 1976; McClelland, 1975).

The Trichotomy of Needs Theory (McClelland, 1961) was not previously drawn to the subfield of behavioral finance which was initially proposed with general management and human resource management (Salas *et al.*, 2017). Given that the Trichotomy of Needs Theory (McClelland, 1961) is primarily founded on human psychology and its influence on decision-making, it is worthwhile to examine its application to the irrationality of stock market investors. Hence, the key objective of this study is to test the impact of the Trichotomy of Needs Theory on stock market investors' irrationality.

Investors can be categorized as passive or active investors depending on their investment strategies and approach to managing their portfolios (Wermers & Yao, 2010). According to Wermers & Yao (2010), passive investors can be characterized as individuals who have become wealthy passively by inheriting a professional career or by risking the money of others rather than their own money. Active investors have achieved significant

wealth throughout their lifetime (Huda *et al.*, 2020; Wermers & Yao, 2010). Researching and categorizing active and passive investors is crucial for tailoring investment strategies to align with different goals and risk tolerances. Active investors seek to outperform the market through frequent trades, while passive investors aim for steady, long-term growth by tracking market indices. Understanding these categories helps financial advisors and institutions design appropriate products, allocate resources effectively, and manage risks. Additionally, it provides insights into market behavior and aids in evaluating the performance of various investment approaches (Azouagh & Daoui, 2023; Flood & Ramachandran, 2000). Consequently, this study further evaluates the moderation impact of the investor category on the relationship between the Trichotomy of Needs Theory and stock market investors' irrationality.

This study has three primary objectives based on the Trichotomy of Needs Theory. First, it examines the impact of the need for power on investors' irrationality. Second, it examines the impact of the need for affiliation on investors' irrationality. Third, it intends to examine the impact of the need for achievement on investors' irrationality. In addition, this study examines the moderation impact of the investor category on the relationship between the Trichotomy of Needs Theory and investors' irrationality. Consequently, the moderation impact of the investor category is tested between each component above (i.e. the need for power, the need for affiliation, and the need for achievement) and the investor irrationality.

The structure of the paper is organized as follows: Section 2 investigates the empirical point of view of the Trichotomy Need Theory. The methodology is covered in section 3, while the data analysis and discussion are included in sections 4 and 5, respectively. The conclusion is the final section.

LITERATURE REVIEW

Stock market investors' irrationality

Research consistently demonstrates that investors often display irrational behavior in financial markets. Empirical studies reveal systematic errors in investor decision-making, such as prematurely exercising rights, selling assets below their intrinsic value, or failing to exercise rights altogether (Rantapuska, 2005). These irrational behaviors include low investor sophistication, information costs, and cognitive biases, such as overconfidence, anchoring, and herd behavior (Levisauskaite & Kartasova, 2015; Rantapuska, 2005). Some scholars argue that such irrationality might play a crucial role in market efficiency by enhancing liquidity and incorporating private information (Rachlinski & Lablanc,

2005). Empirical evidence of investor irrationality has been documented across various markets, including Finland, Lithuania, and Kenya. For example, research on the Nairobi Stock Exchange indicates that investors tend to overreact to both positive and negative news, leading to a phenomenon where loser portfolios outperform winner portfolios over time (Aduda & Muimi, 2011). These findings challenge the conventional notion of investors as purely rational agents and underscore the significance of psychological factors in understanding financial markets. However, there is a vacuum in the literature researching the irrationality of individual investors in CSE. Hence, the authors of this study attempt to address the irrational decision-making behavior of individual investors in CSE based on such investors' psychological traits. Further, to test the psychological traits of individual investors, the well-established Trichotomy of Needs Theory has been applied.

Trichotomy of Needs Theory

McClelland's Trichotomy of Needs Theory elucidates individual decision-making by correlating it with three core needs: power, affiliation, and achievement. Individuals with a pronounced need for power are driven to seek roles that allow them to exert influence and control, aiming for leadership opportunities (Johnson & Lee, 2021; Harrell & Stahl, 1984). In contrast, those with a strong need for affiliation prioritize social harmony and relationship building, leading them to make decisions that foster collaboration and positive group dynamics (Steinmann, Kleinert, and Maier, 2020). Literature also shows that individuals with a high need for achievement are motivated to set ambitious goals and undertake challenging tasks, making decisions that enhance their capabilities and provide clear performance feedback (Slapnicar, Oblak and Licen, 2022). Recent empirical studies underscore that these dominant motivational needs significantly impact decision-making processes, problem-solving approaches, and interpersonal interactions (Di Domenico *et al.*, 2016).

This theoretical framework is beneficial for analyzing irrational decision-making. Empirical evidence highlights how motivational needs can lead to deviations from rational economic models: (Ainslie, 2016) found that high achievement needs often result in excessive risk-taking and irrational financial decisions. Maner *et al.* (2007) observed that a strong need for power can drive individuals to adopt high-risk strategies for influence, regardless of potential negative outcomes. Similarly, Macdonald & Wood (2018) demonstrated that a high need for affiliation may lead individuals to conform to group pressures and prioritize social harmony over rational decision-making. These studies illustrate how

McClelland's theory effectively captures the impact of motivational needs on irrational behavior, providing insights into how individual priorities and behaviors deviate from traditional economic rationality. Therefore, the empirical evidence on the impact of each personal trait (need for power, affiliation, and achievement) on investors' irrationality is revealed as follows.

Need for Power

The need for power, characterized by the tendency to influence or control outcomes affecting others, has been extensively examined in literature (Shernoff, Ruzek, & Sinha, 2017; Daft, Murphy, & Willmott, 2010; Daft, 2008). Research indicates that individuals with a high need for power are often driven by a desire to effect change and make a significant impression on others (Achua and Lussier, 2014). Stahl and Harrell (1982) applied McClelland's (1961) Trichotomy of Needs Theory to various groups, including high school seniors, academy cadets, management undergraduates, and accounting partners, finding a significant correlation between the need for power and decision-making behaviors across these populations. Additionally, Jha (2010) reported that the need for power positively influences the decision-making behavior of frontline employees in five-star hotels. In contrast, McNeese-Smith (1999) observed a negative correlation between the need for power and decision-making behaviors among managers and staff nurses. Furthermore, Winter (1993) provided evidence of a balanced, positive impact of the need for power on the decision-making behavior of political leaders. These findings underscore the complex role that the need for power plays in shaping decision-making processes across different contexts and roles. Consequently, as a psychological trait, the need for power plays a significant role in an individual's decision-making. Hence, the authors aim to test the impact of the need for power on individual investors' irrationality in the CSE.

Need for Affiliation

McClelland *et al.* (1976) define the need for affiliation as an individual's desire to initiate, maintain, and restore positive and effective relationships. Extending this concept, Daft (2008) elaborates that individuals with a high need for affiliation typically avoid confrontation, seek to form closer personal relationships and foster quality friendships. Literature indicates that the need for affiliation is significantly correlated with decision-making among high school seniors, academy cadets, management undergraduates, and accounting partners (Stahl & Harrell, 1982). However, Jha (2010) found no significant positive correlation between the need for affiliation and the decision-making behavior of frontline employees in five-star hotels. Conversely, McNeese-

Smith (1999) reported a negative correlation between the need for affiliation and decision-making behavior among managers while finding a positive correlation with the decision-making behavior of staff nurses. These findings underscore the varying impact of the need for affiliation on decision-making across different roles and contexts. Consequently, as a psychological characteristic, the need for affiliation substantially influences an individual's decision-making. Therefore, the authors seek to examine the effect of the need for affiliation on the irrationality of individual investors in the CSE.

Need for Achievement

The need for achievement, defined as a behavior oriented towards competition and maintaining a high standard of excellence was conceptualized by McClelland (1961). This drive for achievement is characterized by a motivation to excel, accomplish goals, and strive for success according to established expectations (Hansemark, 2003). Research has demonstrated that the need for achievement significantly influences the decision-making of high school seniors, academy cadets, management undergraduates, and accounting partners (Stahl & Harrell, 1982). Additionally, Jha (2010) found that this need has a notable and positive effect on the decision-making behavior of frontline employees in five-star hotels. McNeese-Smith (1999) similarly observed a positive impact of the need for achievement on managerial decision-making, and this effect also extends to staff nurses. Furthermore, the literature provides evidence of a balanced, positive influence of the need for achievement on the decision-making behavior of political leaders (Winter, 1993). These findings highlight the significant role that the need for achievement plays in shaping decision-making across various professional roles. Therefore, this study aims to explore the impact of the need for achievement on the irrational behavior of individual investors of CSE.

Investor category as the moderator

Understanding and categorizing investors into active and passive types is crucial for developing tailored investment strategies that align with diverse goals and risk tolerances. Active investors aim to outperform the market through frequent trading, while passive investors seek steady, long-term growth by tracking market indices. This classification helps financial advisors design appropriate products, allocate resources effectively, manage risks, and gain insights into market behavior and investment performance (Azouagh & Daoui, 2023; Flood & Ramachandran, 2000).

The literature reveals a significant correlation between an investor's risk acceptance, behavioral type, and biases with their active or passive characteristics (Tupe, 2021).

Research in psychology and finance has explored how these characteristics serve as moderating factors. For instance, Ng, Niven, & Notelaers (2022) investigated how active and passive bystanders influence the effects of bullying in group settings. Hauff and Nilsson (2017) found that the impact of a robust financial brand in mitigating the country-of-origin effect is moderated by whether an investor adopts an active or passive approach. Additionally, Linda, Marroquin, and Miranda (2012) explored how active and passive problem-solving styles, in conjunction with a history of suicide attempts, affect the relationship between life stress and suicidal ideation. These studies underscore the importance of considering an individual's active or passive nature in financial and behavioral research.

Active investors

Active investors are characterized by their accumulation of substantial wealth, which leads them to take greater investment risks due to their past experiences and sacrifices (Parashar, 2010). They typically exhibit a low need for safety and a high-risk tolerance, preferring to maintain control over their portfolios. This often results in heightened involvement in investment management and analysis (Akhtar, Thyagaraj, and Das, 2014). Their strong self-confidence and need for power drive their active engagement in investment decisions (Akhtar *et al.*, 2014; Parashar, 2010). However, their excessive involvement can sometimes create tension with wealth managers, potentially disrupting professional management (Akhtar *et al.*, 2014).

Wermers & Yao (2010) and Barnewell (1987) also identify professions such as small business owners, independent professionals, medical surgeons, self-employed consultants, and entrepreneurs as more likely to exhibit active investing behaviors (Akhtar *et al.*, 2014; Pompian, 2012). However, Lim (1992) found no significant difference in occupational characteristics between active and passive investors, suggesting that personal engagement in financial dealings is not necessarily linked to specific occupations. Active investors often believe they understand market trends better than their advisors, leading to reluctance to delegate investment management tasks (Akhtar *et al.*, 2014). Nevertheless, as they age and gain more experience, they may become more open to their wealth manager's advice. Typically, around 40 years old (Lim, 1992), active investors exhibit greater self-confidence and are generally more willing to take risks compared to passive investors.

Passive investors

Passive investors are typically individuals who have accumulated wealth through inheritance, professional careers, or by using others' money rather than their own

(Wermers & Yao, 2010; Barnewell, 1987). For these investors, preserving the safety of their investments is more important than achieving higher returns, reflecting a risk-averse attitude. They are often found in occupations such as corporate executives, non-surgical doctors, accountants, and lawyers, where they may have accumulated wealth later in their careers and prioritize financial stability (Pompian, 2012). Due to their limited initial capital and need for financial security, passive investors tend to be more cautious, favoring diversified portfolios in reputable companies to mitigate risk (Pompian, 2012; Bluethgen *et al.*, 2008). They are also more likely to rely on financial advisors and avoid high-risk investments, which may result in missed opportunities for higher returns.

Literature indicates that passive investors are more conservative in their financial behavior and prefer to follow market trends rather than adopting contrarian positions (Bluethgen *et al.*, 2008). They often seek guidance and are less likely to explore new investment markets independently. Therefore, the investor category is crucial in studying how psychological traits affect irrational decision-making. Differentiating between active and passive investors helps understanding how their psychological traits influence their investment choices and behaviors, providing clearer insights into the reasons behind irrational financial decisions.

Consequently, this study examines how the investor category moderates the relationship between the need for power, the need for affiliation and the need for power on individual investors' irrationality. The independent variables are the need for power (nPow), the need for affiliation (nAff), and the need for achievement (nAch).

The dependent variable is stock market investors' irrationality (SMII), and the moderating variable is investor category (IC). The conceptual framework of the study is illustrated in Figure 1.

The conceptual framework presented in Figure 1 formulates six hypotheses. The first three hypotheses examine the impact of individual components of Needs Theory on stock market investors' irrational behavior. Hypotheses 4, 5, and 6 address the moderating effects of investor categories on the relationship between Needs Theory and the irrationality of stock market investors.

Needs Theory on decision making

The 'Needs Theory', as articulated by McClelland, posits that individuals cannot be strictly categorized into the originally proposed three categories of need motivations: achievement, affiliation, and power (Osemeke & Adegboyega, 2017). Rather, it asserts that all individuals exhibit varying needs, which collectively shape their motivational profiles and influence their decision-making processes (Osemeke & Adegboyega, 2017). Notably, while high affiliation motivation can detract from rational decision-making, a strong need for power is associated with effective leadership skills (McClelland, 1975). He further contends that individuals with a primary need for achievement tend to be the most effective decision-makers, despite the common misconception that all individuals are equally driven by achievement (McClelland, 1975). Critics of McClelland's theory argue that it may lack practical applicability, as it suggests that the components of the Needs Theory operate subconsciously, complicating their measurement and application across different demographic factors (Osemeke & Adegboyega, 2017).

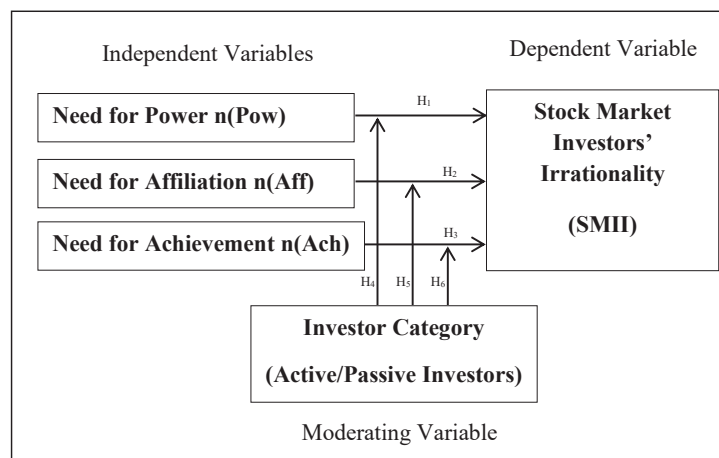


Figure 1: Conceptual framework

Recent research on achievement motivation has yielded mixed findings that both support and challenge McClelland's framework. Studies indicate a marginal positive correlation between risk avoidance and success, yet the environmental variables influencing motivation were not addressed in McClelland's theory (Aditya, 2006). Additionally, the validity of achievement motivation has been recorded at low levels, particularly in smaller enterprises, with more pronounced significance in larger organizations (Aditya, 2006). Some scholars, such as Shane *et al.* (2003), affirm that understanding these motivations can elucidate entrepreneurial decision-making behavior, thereby reinforcing aspects of McClelland's theory. Furthermore, some researchers suggest that McClelland underestimated the predictive capacity of psychological ability, proposing that psychological assessments could offer valid insights comparable to those derived from traditional intelligence and academic measures (Shane *et al.*, 2003). Therefore, according to the empirical evidence, the impact of the Trichotomy of Needs Theory on irrationality still needs to be addressed.

METHODOLOGY

Development of hypotheses

According to the empirical evidence, the impact of the Trichotomy of Needs Theory on stock market investors' irrationality still needs to be addressed. Hence, this study attempts to enrich the literature on behavioral finance by hypothesizing the following.

It has been found that there is a positive impact of the need for power in political leaders' decision-making (Winter, 2002). Moreover, it has been noted that the need for power is significantly correlated with decision-making behaviors of individuals in high school seniors, academy cadets, management undergraduates, and accounting partners (Stahl & Harrell, 1982). Some authors discuss the potential negative consequences of leaders in International Business Machines (IBM) Corporation driven by a strong need for power, as described in McClelland's theory (Spreier *et al.*, 2006). Nevertheless, the literature is lagging in testing the impact of the need for power as a psychological factor towards the stock market investors' irrational decisions. Therefore, to test whether there is a significant impact of the need for power on stock market investors' irrationality, the author has formulated hypothesis 1 (H_1) as follows:

H_1 : The need for power has a significant impact on stock market investors' irrationality.

The existing research has explored the psychological influence of the need for affiliation in various decision-

making contexts. For instance, it has been found that the need for affiliation is positively associated with psychological empowerment and intrinsic motivation, leading to effective decision-making among frontline employees in luxury hotels (Jha, 2010). Additionally, this need has been significantly correlated with decision-making behaviors across diverse groups, including high school seniors, academy cadets, management undergraduates, and accounting professionals (Stahl & Harrell, 1982). Moreover, it has been found that the success of managers at IBM is significantly influenced by their need for affiliation. (Spreier *et al.*, 2006). Despite these findings, there remains a notable gap in the literature regarding the impact of the need for affiliation on stock market investors' irrational decisions. To address this gap, the following hypothesis is proposed:

H_2 : The need for affiliation has a significant impact on stock market investors' irrationality.

A few studies have identified positive relationships between the need for achievement and managerial decision making (Jha, 2010; Stahl & Harrell, 1982). Interestingly, research indicates that leaders at IBM are primarily motivated by a desire for achievement, rather than by desires for power or affiliation (Spreier *et al.*, 2006). However, in the literature, the author could identify a loophole in testing the impact of the need for achievement as a psychological factor towards the stock market investors' irrational decisions. Therefore, in order to test whether there is a significant impact of the need for achievement on stock market investors' irrationality, the author has formulated hypothesis 3 (H_3) as follows:

H_3 : The need for achievement has a significant impact on stock market investors' irrationality.

The empirical review highlights that, although the moderating effect of investor category (active versus passive) has been studied in various finance contexts, its impact on the relationship between Needs Theory and stock market investors' irrationality remains underexplored (Agarwal & Mannil, 2023). To address this gap, the following hypotheses are proposed:

H_4 : The investor category moderates the relationship between need for power and stock market investors' irrationality.

H_5 : The investor category moderates the relationship between need for affiliation and stock market investors' irrationality.

H_6 : The investor category moderates the relationship between need for achievement and stock market investors' irrationality.

Sample and data

This study belongs to the positivism paradigm, a top-down approach that begins with a specific theory that already exists and has been proved by researchers. Therefore, the authors have used the quantitative research method and deductive reasoning approach since this study is based on the well-established Needs Theory by David McClelland (1961). Data for this quantitative study was collected through a primary survey of individual stock investors who invest in the CSE. The questionnaire covers three main independent variables (need for power, affiliation, and achievement), the dependent variable (stock market investors' irrationality), and the moderating variable (investor category). The unit of analysis of this study is individual investors. The population of this study is all the individual investors who invest in CSE. Practically, the number of investors (local individuals) registered in CSE is 623,470 as of October 2023, excluding multiple registrations. The researchers of this study have selected 400 individual investors using the systematic random sampling technique. Since systematic random sampling is a technique for selecting samples at predetermined intervals, (Etikan & Bala, 2017) when selecting the sample, the questionnaire has been sent to every 1500th local individual investor registered in CSE. The study could obtain the response of 386 individual investors who make investment decisions in CSE. The questionnaire has been compiled by aligning questions to test independent variables, i.e., the need for power (nPow), the need for affiliation (nAff), the need for achievement (nAch), and the dependent variable, stock market investors' irrationality (SMII) with the use of five-point Likert scale questions.

Data analysis technique

This study tested hypotheses to examine the relationships among key variables. Specifically, the researchers investigated how the independent variables: need for power (nPow), need for affiliation (nAff), and need for achievement (nAch) affect the dependent variable, stock market investors' irrationality (SMII), using Structural Equation Modeling (SEM) in AMOS software. Additionally, the study explored whether the investor category moderates the relationship between the Needs Theory and stock market investors' irrationality. To assess this, regression analysis was conducted within the SEM framework. SEM is a comprehensive approach to test hypotheses about observable data's means, variances, and covariances based on a conceptual or theoretical model (Kaplan, 2001). It extends factor analysis by evaluating theoretical constructs through empirical data, allowing for the assessment of complex relationships among variables (Sinharay, 2010; Kaplan, 2001). This methodology is particularly effective in verifying theoretical models and understanding the impact of psychological traits on various outcomes. In this study, SEM was utilized to analyze the influence of the need for power, need for affiliation, and need for achievement on stock market investors' irrationality. These traits are habitual patterns of behavior, thought, and emotion (Sinharay, 2010). SEM's robust framework provided a detailed understanding of how these traits affect investor behavior.

Structural Equation Modeling (SEM) was employed to analyze the relationships between psychological traits and stock market investors' irrationality. SEM consists of two main phases: the structural model,

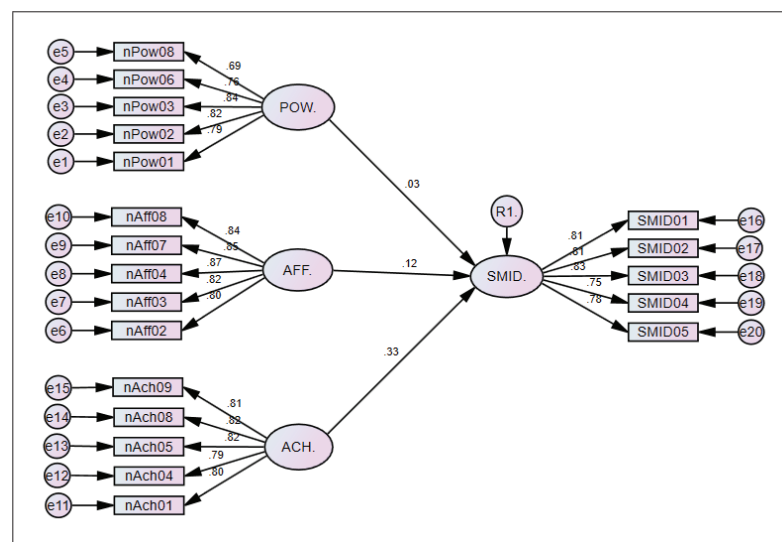


Figure 2: Structural Model for the impact of Needs Theory on SMII.

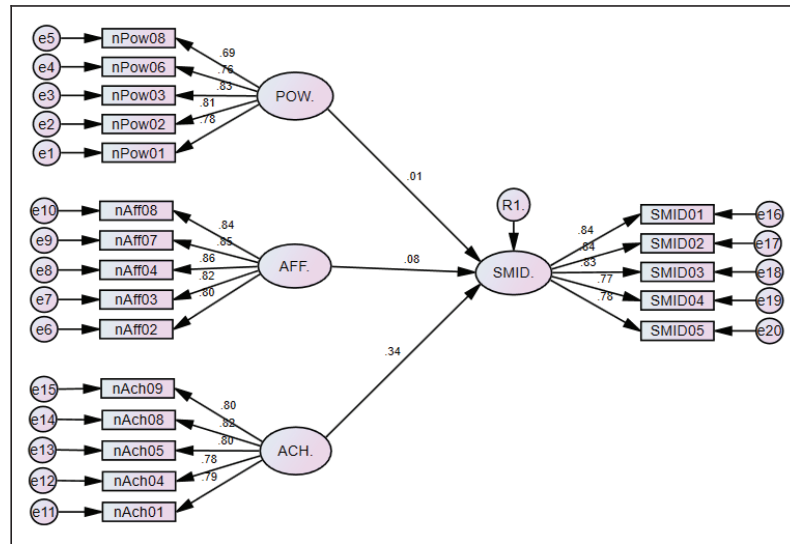


Figure 3: Structural Model for the moderation impact of the investor category.

which specifies relationships between dependent and independent constructs, and the measurement model, which connects these constructs to observed variables. Path diagrams visualize these relationships, and data is analyzed to estimate the model and draw inferences. For this study, a factor analysis was conducted to select the most appropriate items for each variable. Following this analysis, five suitable items were evaluated for each independent variable (from a total of nine) and five items for the dependent variable. Ultimately, the factor analysis ensured that the items effectively represented the constructs under investigation and provided a solid foundation for the SEM analysis. The authors developed two distinct structural models. Figure 2 illustrates the structural model designed to test the impact of the Needs Theory on stock market investors' irrationality, while Figure 3 depicts the moderating effect of investor category on the relationship between the Needs Theory and the irrationality exhibited by stock market investors.

Operationalization of variables

Operationalization of the key variables is depicted in Table 1 below. The normality has been checked for independent variables: the need for power (nPow), the need for affiliation (nAff), the need for achievement (nAch), and the dependent variable, stock market investors' irrationality (SMII), and the moderating variable, investor category (IC) based on Skewness and Kurtosis values. The graphical approach has further ensured Normality via P-P plots (Annexure 1) and Q-Q plots (Annexure 2).

Table 2 shows that all the skewness values are negative values, but all the values are within the range of -2 to +2. It is further noticeable that all the kurtosis

values also range between -2 and +2. In terms of both skewness and kurtosis values, it is visible that the data set is normally distributed even with the AMOS statistical analysis (Kaplan, 2001).

DATA ANALYSIS AND RESULTS

Descriptive analysis

This section provides a profile of the sample using descriptive statistics such as, gender, age, educational attainment, monthly income, employment status, investment experience, and investor category. This profiling aids in justifying the use of systematic random sampling in the study.

The sample exhibits a higher representation of females and a predominant age group between 31 and 45 years. In terms of educational background, the majority of respondents hold a bachelor's degree, highlighting the educational qualifications of individual investors within the sample. Income analysis reveals that most respondents fall into the income bracket exceeding Rs.250,000 per month, with 83% of the sample currently employed in salaried positions. Regarding investment experience, the sample predominantly comprises individual investors with less than five years of experience. Additionally, the majority of the sample identifies as passive investors. This finding aligns with the broader investor behavior observed on the CSE, where a significant proportion of investors are characterized as passive (CSE, 2020).

Validation of the model

The data collected was subjected to statistical analysis using AMOS software to validate the proposed model, as illustrated in Figure 2 and 3. Model validation was

Table 1: Operationalization of variables

Variable	Items	Source
IV 01: Need for Power (nPow)	I am quite effective in getting others to agree with me.	(Slocum & Hellriegel, 2009; Steers & Braunstein, 1976)
	I feel confident when directing the work of others.	
	Status and recognition have meaning and significance.	
	Opportunities to become widely known are important to me.	
	I often take new employees under my wing and mentor them.	
IV 02: Need for Affiliation (nAff)	I feel uneasy when I have to tell others what to do.	(Slocum & Hellriegel, 2009; Steers & Braunstein, 1976)
	I spend a lot of time visiting with friends and family.	
	I choose hobbies that I can share with other people.	
	I am uncomfortable complaining if I receive bad service in a restaurant.	
	I seldom try to draw attention to myself.	
IV 03: Need for Achievement (nAch)	I often set goals that are very difficult to reach.	(Slocum & Hellriegel, 2009; Steers and Braunstein, 1976)(Slocum & Hellriegel, 2009; Steers & Braunstein, 1976)
	I enjoy making challenging decisions.	
	I continuously look for ways of doing things better and faster.	
	I will not be satisfied until I am the best in my field.	
	I enjoy competing with others.	
DV: Stock Market Investors Irrationality	When making an investment, I trust my inner feelings and reactions.	(Rasheed <i>et al.</i> , 2018)
	I generally make investments that feel right to me.	
	When making investments, I rely upon my instincts.	
	When I make an investment, it is more important for me to feel the investment is right than have a rational reason for it.	
	When I make Investment, I tend to rely on my intuition.	
MV: Investor Category	When investing I have used my inherited money.	(Parashar, 2010)
	Money earned through my profession/career/borrowed money.	

Source: Developed based on the literature

Table 2: Normality statistics

Variable	Items	Skewness	Kurtosis
Need for Power (nPow)	nPow01	-0.611	0.403
	nPow02	-0.807	0.664
	nPow03	-0.789	0.298
	nPow06	-0.866	0.192
	nPow08	-0.646	0.394
Need for Affiliation (nAff)	nAff02	-0.143	-0.956
	nAff03	-0.149	-1.179
	nAff04	-0.248	-1.122
	nAff07	-0.150	-1.170
	nAff08	-0.240	-1.069
Need for Achievement (nAch)	nAch01	-0.817	0.515
	nAch04	-0.863	0.187
	nAch05	-1.119	0.616
	nAch08	-1.016	0.685
	nAch09	-0.979	0.605
Stock Market Investors' Irrationality (DV)	SMII01	-1.093	1.586
	SMII02	-1.233	1.542
	SMII03	-0.665	0.546
	SMII04	-0.969	1.105
	SMII05	-0.690	0.560

Source: Compiled by the Authors based on survey data, 2023

Table 3: Model Evaluation Criteria: Goodness of Fit

Absolute fit indices			
CMIN/DF	RMSEA	GFI	AGFI
2.116	0.054	0.914	0.891
Incremental fit indices			
TLI	CFI	RFI	NFI
0.956	0.961	0.919	0.929
Parsimony fit indices			
PGFI	PNFI	PCFI	
0.727	0.816	0.845	

Source: Author compiled based on survey data, 2023

conducted through the application of the goodness-of-fit test.

The CMIN value indicates (Table 3) the discrepancy between the unrestricted sample covariance matrix and the restricted covariance matrix. According to Hair *et al.* (2006), the model is considered acceptable if the CMIN/DF ratio is below 3. In this study, the CMIN/DF value was 2.116, which is below the threshold, suggesting that the model demonstrates an adequate fit. Additionally, the model's goodness-of-fit was evaluated using Absolute, Incremental, and Parsimony indices, which approached a value of 1, further supporting the model's suitability (Hair *et al.*, 2006). The RMSEA value, which should fall between 0.05 and 0.08 to indicate a good fit, also met this criterion. Consequently, the model validation is deemed satisfactory based on all the specified criteria.

Convergent validity

Convergent validity is a key aspect of construct validity that evaluates whether different measures of the same theoretical construct are consistently related. This involves examining if measures theoretically expected to be associated with one another indeed show significant correlations. Essentially, convergent validity ensures that the construct is accurately and comprehensively represented by the various measurement tools used. To assess this, researchers analyze the correlations between different indicators of the same construct to confirm their alignment with theoretical expectations (Gefen *et al.*, 2000).

Table 4 presents the results of the convergent validity assessment for the measurement model. According to Hair

Table 4: Results of the Convergent Validity Test

Construct	No. of Items	Standardized Factor Loading		Average Variance Extracted	Composite Reliability
		Min	Max		
nPow	05	0.695	0.841	0.585	0.849
nAff	05	0.762	0.856	0.660	0.907
nAch	05	0.787	0.821	0.652	0.903
SMII	05	0.748	0.837	0.640	0.899

Source: Author compiled based on survey data, 2023

Table 5: Discriminant Validity Test

	nPow	nAff	nAch	SMII
nPow	0.65	-	-	-
nAff	0.13	0.58	-	-
nAch	0.01	0.05	0.66	-
SMII	0.12	0.03	0.02	0.64

Source: Author compiled based on survey data, 2023

et al. (2010), the ideal standardized factor loadings for reflective indicators should be 0.5 or higher, with values exceeding 0.7 considered optimal. Table 4 indicates that all standardized factor loadings exceed 0.6 and are statistically significant at the 5% level. Additionally, all Average Variance Extracted (AVE) values are above 0.5, as recommended by Zaiț & Berteau (2011), and all composite reliability measures surpass 0.7, in line with the standards set by Valentini & Damasio (2016). These findings collectively affirm the presence of convergent validity in the measurement model.

Discriminant validity

To evaluate discriminant validity, the square of the inter-construct correlation estimates between each construct was compared to the Average Variance Extracted (AVE) for each construct. According to Zaiț & Berteau (2011), the AVE of each construct should exceed the squared inter-construct correlation estimates between that construct and all other constructs.

Table 5 provides this comparison, with diagonal entries representing the AVE for each construct and sub-diagonal entries indicating the squared inter-

construct correlation estimates among constructs. Table 5 demonstrates that the AVE for each construct is greater than the squared correlations with other constructs, confirming that discriminant validity is upheld.

Having established the model's validity through convergent and discriminant validity assessments, the analysis is now prepared to advance to hypothesis testing. Consequently, the following section presents the results of the hypothesis tests.

Trichotomy of Needs Theory on SMII

Using SEM, the authors conducted a regression analysis to test the proposed hypotheses. Initially, this analysis examined the direct impact of need for power, need for affiliation, need for achievement on stock market investors' irrational behavior. This methodological approach enables a thorough assessment of how need for power, need for affiliation, need for achievement influences investor irrationality, shedding light on the psychological factors driving financial decision-making. Table 6 reveals that both the need for affiliation and the need for achievement have a statistically significant impact on stock market investors' irrationality, as

indicated by p-values less than 0.05. Conversely, the need for power does not show a statistically significant effect on investor irrationality, with a p-value exceeding 0.05.

Investor category on Trichotomy of Needs Theory and SMII

This study also examines the moderating effect of investor category, that is, investors' active/passive nature, on the relationship between the need for power, the need for affiliation, the need for achievement and stock market investors' irrationality. In this context, the authors aim to explain investor behavior through the lens of Needs Theory. Therefore, the following regression analysis results were derived from the structural equation modeling. However, the need for power does not show a statistically significant impact on investor irrationality, as per the results of Table 6. Therefore, investigating the moderating effect of the need for power on investor

irrationality was deemed unnecessary, leading to Hypothesis 4 (H_4) being excluded from further analysis (Table 7). Instead, the moderating effects of the need for affiliation and the need for achievement were examined and the results are presented in Table 7.

As shown in Table 7, the investor category significantly moderates the relationship between the need for power, the need for affiliation, the need for achievement, and stock market investors' irrationality. Specifically, it moderates the effect of the need for affiliation on investors' irrational behavior, suggesting that the impact of this need on irrationality varies depending on the investor's category. Similarly, the investor category also moderates the relationship between the need for achievement and investors' irrationality, indicating that the investor category moderates the influence of the need for achievement on irrational behavior.

The analysis reveals that the investor category moderates the relationship between the independent

Table 6: Regression Analysis – Direct Impact

Hypotheses	Path	Status	Standardized Path Coefficients	P-value
H_1	nPow $\rightarrow$ SMII	Direct	0.03	0.63
H_2	nAff $\rightarrow$ SMII	Direct	0.12	0.03
H_3	nAch $\rightarrow$ SMII	Direct	0.33	0.00

Source: Author compiled based on survey data, 2023

Table 7: Regression Analysis – Moderation Effect

Hypotheses	Path	Status	Standardized Path Coefficients	P-value
H_5	nAff $\rightarrow$ SMII	Direct	0.08	0.02
H_6	nAch $\rightarrow$ SMII	Direct	0.34	0.00

Source: Author compiled based on survey data, 2023

variable and the dependent variable, indicating that both the strength and direction of this relationship change depending on the level of the investor category (Henseler & Fassott, 2010). Specifically, in the context of stock market investors' irrationality, the effect of the need for affiliation and the need for achievement on irrationality is contingent upon the investor category. This implies that the association between these needs and irrational behavior changes depending on whether the investor is categorized as active or passive, highlighting the significant moderating impact of investor engagement on these relationships.

Based on the coefficient values and their corresponding significance levels for each variable, the following findings emerge from the hypothesis analysis. In Hypothesis 01, the null hypothesis is retained, indicating insufficient evidence to support that the need for power influences stock market investors' irrationality. Conversely, in Hypothesis 02, the null hypothesis is rejected, demonstrating statistically significant evidence that the need for affiliation does affect stock market investors' irrationality. Similarly, Hypothesis 03 also leads to rejecting the null hypothesis, indicating that the need for achievement significantly impacts stock market investors' irrationality. For Hypothesis 05, the null hypothesis is rejected, highlighting a statistically significant moderating effect of the investor category on the relationship between the need for affiliation and stock market investors' irrationality. Likewise, in Hypothesis 06, rejecting the null hypothesis suggests a statistically significant moderation effect of the investor category on the relationship between the need for achievement and stock market investors' irrationality.

DISCUSSION

This analysis primarily examines the influence of the need for power, the need for affiliation, and the need for achievement on stock market investors' irrationality. Furthermore, the study seeks to evaluate the moderating effect of the investor category on the relationship between these needs and investors' irrational behavior. To achieve this, the authors employed descriptive statistics to profile the sample, incorporating different variables. These included common factors, such as gender, age, educational level, monthly income, and employment status, as well as less common factors, such as investing experience and investor category. This comprehensive approach, facilitated by systematic random sampling, ensures a robust representation of the population. Interestingly the sample includes a majority of female investors, while statistics from 2020 indicate a growing proportion of investors aged 18-30, while the

number of mature investors is decreasing (CSE, 2020). Consequently, the sample used in this study reflects a higher representation of younger investors. In addition to personal psychological characteristics, education level significantly influences irrational decision-making, as it can affect how decisions are approached. The majority of the sample holds a bachelor's degree, highlighting the impact of educational background on decision-making patterns. In this study, the investor category is a key moderating variable, categorized into active and passive investors. Statistics from the CSE indicate that most investors are passive, typically accumulating wealth through inheritance, professional careers, or investing in others' funds rather than their own. The CSE is currently promoting a shift towards active investing (CSE, 2020). Consequently, the sample predominantly comprises passive investors.

The findings of this study indicate that both the need for affiliation and the need for achievement have a significant positive impact on stock market investors' irrational decision-making. In contrast, the need for power does not exhibit a significant effect on investors' irrationality. Furthermore, the results demonstrate that the investor category plays a significantly moderating role in the relationship between the need for affiliation and irrational decision-making, as well as in the relationship between the need for achievement and irrational decision-making. Therefore, utilizing the investor category as a variable is important for understanding how psychological needs influence investment behavior.

Past literature has established a significant correlation between the need for power and decision-making behavior across various groups, including high school seniors, academy cadets, management undergraduates, and accounting partners (Harrell & Stahl, 1984). Conversely, McNeese-Smith (1999) found a negative impact of the need for power on the decision-making behavior of managers and staff nurses. In contrast to these findings, this study reveals that the need for power does not significantly impact stock market investors' irrationality. Additionally, Jha (2010) reported a significant positive relationship between the need for power and the decision-making behavior of frontline employees in five-star hotels. This result suggests that, despite its influence on decision-making in various other groups, the need for power does not affect the irrational decision-making of stock market investors. One explanation for this discrepancy is the unique context of the stock market, where emotional and cognitive biases often outweigh personality traits like the need for power. Research shows that investors rely on heuristics and are influenced by herd behavior and overconfidence (Barberis & Thaler, 2003), which can undermine rational decision-

making. Furthermore, the analytical nature of investment decisions may conflict with the assertive behaviors typically associated with a high need for power, as rapid, data-driven decisions take precedence over interpersonal dynamics (Thompson *et al.*, 2009). Thus, while the need for power may drive behaviors in other contexts, its influence is diminished in stock market investments due to the predominance of emotional and cognitive factors. Recent research has refined the concept of the need for power by distinguishing between a personalized need for power and a socialized need for power. Studies indicate that a personalized need for power is positively correlated with management behaviors and work performance. In contrast, a socialized need for power is positively associated with positive work-related personality traits (Khan & Batool, 2022). Further, it has been found that the personalized need for power predicts counterproductive work behaviors in corporate managers, mediated by humility (Khan & Batool, 2022).

Previous research has established a significant correlation between the need for affiliation and decision-making behavior across various groups, including high school seniors, academy cadets, management undergraduates, and accounting partners (Harrell & Stahl, 1984). Additionally, McNeese-Smith (1999) reported a positive correlation between the need for affiliation and decision-making behavior among staff nurses, and similar findings were observed among frontline employees in five-star hotels (Jha, 2010; McNeese-Smith, 1999). Consistent with these studies, this research demonstrates a significant positive relationship between the need for affiliation and irrational decision-making among stock market investors. This study corroborates the findings of Harrell & Stahl (1984), McNeese-Smith (1999) and Jha (2010) by revealing a significant positive relationship between the need for achievement and irrational decision-making among stock market investors. However, some studies and scholarly texts have highlighted that personal opinions are inherently biased, which can undermine the applicability of Maslow's Needs Theory (Upadhyaya, 2014). Consequently, the theory may lack relevance for certain individuals due to challenges encountered in its practical application (Upadhyaya, 2014). Further, it has been found that the need for achievement impacts entrepreneurial behavior, mediated by the entrepreneurial passion of potential entrepreneurs from different nationalities living in China (Saif & Ghanina, 2020). This is particularly evident in the context of the CSE, where unique market dynamics and cultural factors influence investor decision-making. While the need for achievement positively impacts entrepreneurial behavior among diverse nationalities in China (Saif & Ghanina, 2020), its effectiveness may

be diminished in the CSE due to market volatility and cognitive biases. Additionally, cultural attitudes toward risk and competition in Sri Lanka may further shape how the need for achievement influences investment behaviors in this specific environment.

Overall, while this study aligns with past research by confirming the significant positive impacts of the need for affiliation and the need for achievement on irrational decision-making among stock market investors, it diverges from existing literature by finding no significant effect of the need for power on investors' irrationality. This suggests that the influence of psychological needs on decision-making may vary across different contexts and populations. This difference may be linked to the distinctive features of the CSE, where market fluctuations and cultural norms emphasize social relationships and achievement rather than assertiveness. As a result, the impact of psychological needs on investor behavior differs in this particular setting, underscoring the necessity of comprehending these dynamics.

The active and passive characteristics of investors have been explored in various psychological and behavioral finance studies. However, the moderating effect of investor category on the relationship between the Trichotomy of Needs Theory and stock market investors' irrational decisions has not been previously investigated. This study reveals a significant moderating effect of investor category on the relationship between the need for affiliation and irrational decision-making among stock market investors. Additionally, it demonstrates a significant moderating effect of investor category on the relationship between the need for achievement and irrational decision-making in the stock market.

The significant moderating effect of investor category on the relationship between the need for achievement and irrational decision-making is particularly relevant in the context of the CSE, where active investors, who comprise a substantial portion of market participants, often engage in frequent trading. These active investors, driven by a high need for achievement, may make impulsive decisions in response to market volatility, leading to increased irrational behavior. Conversely, passive investors in the CSE tend to focus on long-term strategies, resulting in more rational decision-making than active investors, thereby illustrating the critical role that these distinct investor categories play in shaping market dynamics and outcomes.

CONCLUSION

In conclusion, this study provides compelling evidence that the need for power, need for affiliation, need for

achievement significantly influences stock market investors' irrational behavior. By demonstrating a positive relationship between Needs Theory and irrational decision-making, the research underscores how psychological and emotional needs, particularly the need for affiliation and the need for achievement, drive investors away from rationality. The findings reveal that these psychological needs are central to the Trichotomy of needs, as proposed by David McClelland's theorem (1961), and show that this model fits well within the context of behavioral finance.

Additionally, the study identifies a significant moderating effect of investor category on the relationship between the need for power, need for affiliation, need for achievement and irrational decision-making. This highlights the complexity of investor behavior, suggesting that different types of investors are influenced by their needs in varied ways. These insights into how personal characteristics and psychological constructs affect investment decisions offer valuable implications for enhancing investor education and refining behavioral finance forecasting models. By incorporating these psychological factors, predictions about investor behavior can be more accurate, contributing to better market strategies and understanding.

This study offers valuable insights for stakeholders, including market analysts, individual investors, stockbrokers, and stockmarket policymakers. For market analysts, the study provides a framework for understanding how different investor types (active vs. passive) exhibit distinct decision-making behaviors and how these characteristics influence stock market outcomes. Individual investors can leverage these insights to evaluate and refine their decision-making processes on the CSE, based on their psychological profiles. Stockbrokers, who rely on their expertise and knowledge to navigate the stock market, will benefit from an enhanced understanding of how psychological characteristics and investor behavior impact market dynamics. This expanded knowledge will aid them in making more informed decisions in the stock market. Finally, stock market policymakers can utilize the findings of this study to inform their decisions and policies concerning individual investors, ensuring that regulatory frameworks and interventions are tailored to account for the psychological and behavioral nuances identified.

Future research should aim to broaden the scope of this study by applying its objectives to stock markets beyond the CSE. This expansion would enhance the generalizability of the findings. Additionally, while this

study focused exclusively on local individual investors within the CSE, future researchers should include foreign investors and institutional investors to provide a more comprehensive understanding of irrational decision-making. Furthermore, researchers are encouraged to select stock markets that adequately represent both active and passive investors, as the CSE currently has a lower proportion of active investors when compared to passive investors. In the context of behavioral finance, this study utilized McClelland's Trichotomy of Needs Theory to explore psychological influences. Future research should consider incorporating other psychological theories, such as Bounded Rationality Theory, Adaptive Markets Hypothesis, Prospect Theory, or Regret Theory, to examine the possibility of explaining the stock market investors' irrational behavior using these theories. This analysis could offer additional insights into the psychological dimensions of irrational investment decisions.

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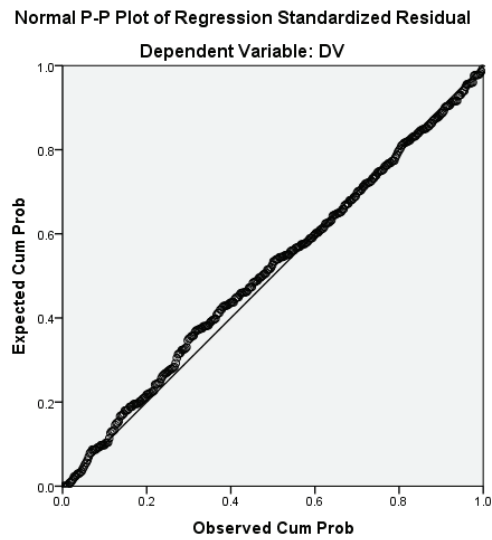
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Appendix 1: Normal P-P Plot



Appendix 2: Normal Q-Q Plot

