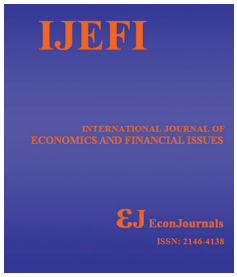

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Constructing a Model for Domain-specific Risk-taking, Life Satisfaction and Risk Tolerance of Investors

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ABSTRACT

Research within investment companies is necessary to assist financial planners to accurately identify the factors that may influence their client's financial risk tolerance and ultimately the performance of their portfolios. Therefore, the objective of this paper is to identify whether factors such as investor personality and life satisfaction influence an investors risk tolerance level. An electronic survey was utilised where the responses were collected from the clientele (1065) of a private investment firm in South Africa. Results indicated that life satisfaction was found to significantly contribute to predicting investor risk tolerance. The financial, social and recreational, domains of an investors personality also had a significant influence on risk tolerance. The development of this risk tolerance SEM is unique in its existence, as it is the first to model life satisfaction, risk perception and the risk tolerance level of private investors in South African. As a result, these findings will make a significant contribution to the way financial investment companies profile their clients.

Keywords: Domain-specific Risk-taking Behaviour, Risk Tolerance, Life Satisfaction, Investors, South Africa
JEL Classifications: D92, G11, G32

1. INTRODUCTION

Funds committed and not immediately enjoyed for consumption can be defined as an investment (Marx et al., 2010). Individual investors face a trade-off between risk and return when making financial investment decisions. The risk/return trade-off resembles the concept that high risk is associated with high return. On the contrary, low risk is associated with the probability of low returns (Marx et al., 2009; Old Mutual, 2015). Crouhy et al. (2014) stated that the risk/return trade-off is measured by experience whereas risk is rather a theoretical concept. Risk is encountered in investment decisions, hence the degree of risk an investor is willing to take on is known as risk tolerance level.

Grable (2016) defined risk tolerance as the level of risk an investor is willing to tolerate to make profits. Simalary, Lucarelli and Brighetti (2010) state that financial risk tolerance can be explained as a collective of individual risk attitude and risk capacity. Risk attitude is more associated with investors personality and their psychological characteristics that influence their propensity to take on risk. Risk attitude is a choice or preference hence investment and portfolio approaches should be utilized to select suitable risk options to improve both the decision-making process as well as decision outcome and overall performance (RIMS, 2012). The amount of risk tolerance individual investors can bear can be defined as their risk appetite, whereas risk capacity is the capable and affordable aggregate risk that an individual investor can take (Evangelou, 2020). Risk capacity differs from risk attitude since it is more associated with the financial characteristics of the individual investor (Lucarelli and Brighetti, 2010:2). Based on these definitions, it's clear that there are fundamental differences between the components of risk tolerance (i.e. risk attitude and risk capacity) (Weber et al., 2002). Hence, portfolio managers and financial advisors should use different approaches when measuring risk attitude and risk capacity to form a risk profile.

Risk tolerance has two aspects namely subjective risk tolerance (where the investor place themselves on a risk tolerance scale) and objective risk tolerance (for example a risk profile performed by a financial advisor to determine a clients risk tolerance) (Hanna and Chen, 1997). Subjective risk tolerance is founded on the economic theory of risk aversion, while objective risk tolerance is founded on Malkiel's (1996) notion of the objective financial situation of the household, comprising each goal's investment horizon. Malkiel (1996) affirmed that the risk an individual can take is reliant on the individual's entire financial condition, which includes all categories and sources of income, excluding income received from investments.

Idiosyncratic differences exist in how individuals respond to risk and uncertainty when making investment decisions. Much of these differences are based on these individuals risk attitude (Blais and Weber, 2006). According to the utility framework and prospect theory, the differences in an individuals risk attitude can be depicted by their utility functions which will differ in convexity as well as the shape which explains the level of risk aversion (Tversky and Kahneman, 1992). Convention, however, describes risk attitude as a personality trait (Weber et al., 1998). When considering individuals risk attitude or personality trait across various domains, individuals are inherently risk-averse (Filbeck et al., 2005). By analysing an individuals risk attitude in specific situations under a domain, the attitude of that individual can vary. An individual can have one response to risk in one domain and a completely different response in another domain. Research by MacCrimmon and Wehrung (1986; 1990) have shown that individuals exhibit different levels of risk-taking behaviour in various decision domains such as gambling, financial investing, business decisions, and personal decisions.

Investors can pose different risk-taking behaviour/personality types throughout several life domains namely (i) ethical, (ii) recreational, (iii) health/safety, (iv) financial, and (v) social (Blais and Weber, 2006). Moreover, life satisfaction is also a factor that can most likely influence investment decisions. Diener et al. (1985) and Saris et al. (1996) point out that life satisfaction evaluates the overall life satisfaction of an individual in terms of a global assessment. The risk tolerance behaviour of investors can be influenced by various factors, however, this paper will focus on two factors namely life satisfaction and risk-taking personality traits.

Successful investment decisions in harsh and uncertain times such as the last decade (2010-2020) that investors find themselves in will only derive from the understanding of individual risk attitudes of investors (Sahin and Yilmaz, 2009; Van den Bergh, 2018). Therefore, research within investment companies is necessary to assist financial planners to accurately identify the factors that may influence their clients' financial risk tolerance and ultimately the performance of their portfolios. Therefore, the objective of this paper is to identify whether factors such as domain-specific risk-taking attitude (as a personality trait) and life satisfaction influence an investors risk tolerance level. As to date, very few researchers have attempted to model these three factors in an investment context.

2. LITERATURE REVIEW

Risk is predominantly defined as financial loss (Vanguard, 2018). Moreover, when an investor makes a financial decision, the amount of uncertainty the investor is willing to accept whilst making such an investment is known as risk tolerance (Grable, 2000). Pompian (2016) stated that risk tolerance is co0mposed out of risk appetite and risk capacity. According to Gai and Vause (2005), the amount of risk an investor is willing to bear can be described through their appetite. Moreover, Harris et al. (2006) argued that the investor's risk appetite originates from decisions to be made between risky investments or choices and the exchange between fear and hope. On the other hand, risk capacity is the actual amount of risk an investor can take on (Goldstein and McElligott, 2014). Risk capacity can also be described as the management of financial losses investors' experienced (Dickason, 2017). Table 1 provides an overview of previous studies on risk tolerance. The purpose of each study is indicated.

MacCrimmon and Wehrung (1986) found that risk tolerance based on demographics was limited. These researchers found there were unrealistic settings that did not portray the actual risks that investors face and found contradictory research, concluding that researchers did not consider the multidimensionality of risk and subjectivity of risk tolerance.

However, Sung and Hanna (1996) found that the characteristics of demographic variables are deemed important such as years leading to retirement, high education levels, race, being self-employed and non-investment income. Wang and Hanna (1997) established that there is a relationship between age and risk tolerance.

Grable and Lytton (1998) found in their research that age and gender were the most important variables influencing risk tolerance along with other characteristics such as marital status, occupation, self-employment, income, race and education. In 1999, Grable and Joo added that high levels of education, financial knowledge, internal locus of control, marital status, professional occupation, high income, solvency and economic expectations are important variables affecting financial risk tolerance. However, Grable and Joo (2000) did not consider gender, age and marital status to be important influences. On the other hand, Mazumdar (2014) found there is no evidence of a relationship between financial knowledge and investment behaviour.

In Australia, Hallahan et al. (2004) group demographic, socio-economic and psychological factors into bio psychological and environmental factors based on the model of Irwin (1993). Hallahan et al. (2004) emphasised that factors such as higher education (bachelor or higher), unmarried status, high income (net worth and household), high financial knowledge and self-esteem need to be considered. Emphasis also was placed on environmental factors during this study.

Gilliam et al. (2010) determined that a high level of education plays a role whereas Roszkowski and Davey (2010) and Van de Venter et al. (2012) determined that risk can be considered a personal trait that tends to change over time in conjunction with

Table 1: Research on financial risk tolerance

Researchers	Risk tolerance aim
Levin et al. (1986)	To determine if contextual and situational variables play a role
Roszkowski and Snellbecker (1990)	To determine if contextual and situational variables play a role
Roszkowski et al. (1993)	To determine if different occupations play a role to differentiate between different financial risk levels
Sulloway (1997)	To investigate the role of demographics, socioeconomic status, attitudes about money and personality
Sung and Hanna (1996)	To investigate the effect of demographic variables
Wang and Hanna (1997)	To establish the relationship between age and financial risk tolerance and investigating the effects of demographic and socio-economic factors
Carducci and Wong (1998)	To investigate the role of demographics, socioeconomic status, attitudes about money and personality
Grable (1997); Grable and Lytton (1998); Grable and Joo (1999); Grable and Joo (2000); Grable (2000)	To investigate several variables: age, gender, marital status, occupation, self-employment, income, race, education, socioeconomic factors, psychological factors and attitudes pertaining to risk-taking behaviours
Hallahan et al. (2003, 2004)	To group demographic, socio-economic and psychological into bio psychological and environmental factors
Kamiya et al. (2007)	To investigate if contextual and situational factors play a role
Grable and Roszkowski (2008)	To establish the role of psychology in risk tolerance
Gilliam et al. (2010)	To investigate if a high level of education plays a role
Van de Venter et al. (2012)	To determine financial risk as a personal trait
Sulaiman (2012)	The study investigated the connection between the risk tolerance of investors and their demographic factors
Lemaster and Strough (2014)	To gain insight into gender dissimilarities in risk tolerance, this study explored the relative effects of multiple psychological dimensions of gender, such as gender identification, gender typicality, as well as gender-stereotyped personality traits and social roles
Fisher and Yao (2017)	Investigated gender differences in financial risk tolerance employing a large, nationally representative dataset, the Survey of Consumer Finances

Source: Author compilation

the influence of external factors. In further studies, Gibson et al. (2013) found that investors that were financial clients had a higher level of risk perception and believed income and investment knowledge have a positive influence on risk tolerance. However, this researcher believed that gender and age have a negative impact on risk tolerance.

Grable and Roszkowski (2008) and Kaplansi et al. (2015) found that emotion was a significant factor in determining risk tolerance. Happy people were found to have higher risk tolerance levels than unhappy people. Subjective well-being (SWB) is used to define the well-being of individual experiences based on the subjective assessment of the individuals' life (or in other terms their level of happiness with their state of life) (Diener and Ryan, 2009). Two components SWB consists of are known as the affective-emotional component and the cognitive-judgemental component (Arrindell et al., 1999). The first component, an affective-emotional component of SWB is mostly referred to as the positive and negative affect (Pabot and Diener, 1993). Many pleasant experiences in terms of moods, emotions, joy and excitement related to the positive affect (Lawrence and Jersey, 1988). On the other hand, the negative effect refers to unpleasant emotions and moods which typically includes sadness, depression and anxiety (Headey and Wooden, 2004).

The second component of SWB is the cognitive-judgemental component. This component is known as life satisfaction (Diener et al., 1985) which is used to evaluate the quality of an individual's life. Life satisfaction is defined by Diener et al. (1985) as the global assessment of an individual's own life. Life satisfaction includes aspects of life quality but focuses more on the individuals' satisfaction with his or her own life irrespective of the individuals is living a life that is regarded as a "good life" (Veehoven, 2014). The term life satisfaction is often used interchangeably with subjective well-being and happiness(De Coning, 2016). Myers and Diener (1997) and Hergenhahn (2005) scribes happiness as a pleasant feeling of life over the long term and is based on the accumulation of inborn needs. Whereas, subjective well-being refers to the cognitive and affective analysis of an individual's life (Diener, 2012) and is composed of a component of life satisfaction. Pavot and Diener (1993) argued that life satisfaction is a subjective construct and the most stable component of SWB. It is argued by Judge et al. (1998) that life satisfaction is related to the overall evaluation of an individuals' life rather than current feelings as with SWB. When positive emotions are experienced regarding favourable investment choices the overall quality of life of investors increase (Dickason and Ferreira, 2019). When deviations exist between the current and desired level of life satisfaction, potential investment decisions may be influenced. Investors base their investment decisions on the suggestions of an investment company. However, the investment choice of the investor is not indicated on the profiles (Mayo, 2000).

Mankuroane (2020) found a positive correlation between investors subjective life satisfaction and their long-term investment intentions. Life satisfaction was found to not affect investors intentions to invest in the short-term. Masenya and Dickason (2020) investigated the effect of overall investor well-being on their risk tolerance levels. This study found a positive relationship between investors life satisfaction and their risk tolerance levels. Therefore individuals who perceived themselves to be happy with

their current state of life were more willing to tolerate risk than those not so happy.

It is recommended that investment companies should take into account the consequences life satisfaction might have on potential investment decisions. Individuals deemed happy, are happy in most areas of their lives (Diener, 2009). On the contrary, unhappy individuals seek approval most of the times and are deemed unhappy in most areas of their lives. These individuals will typically take active steps to experience happiness to improve their life satisfaction status. Diener et al. (1991) concluded that when the life satisfaction status is negative, a general pessimistic feeling is experienced by these individuals regarding financial situations.

3. METHODOLOGY

3.1. Research Paradigm and Approach

This study implemented a quantitative research approach employing a self-structured questionnaire using validated scales. Furthermore, a positivistic research paradigm was followed since the study aimed to challenge the traditional notion of "the absolute truth of knowledge" (Henning et al., 2004).

3.2. Research Population and Sampling Technique

The research population for this article included all investors in South Africa, whereas the sample frame constituted of investors from a single investment company. For this study non-probability, purposeful sampling (snowball sampling) was used to filter those individuals who meet the exclusion criteria of the sample. The questionnaire was distributed to all of the participants of an investment company to achieve a response of 1065 participants. In inclusion criteria required participants to be older than 16 years of age, earning any source of income, and taking part in investment activities using an investment firm.

3.3. Survey Design and Procedure Method

An electronic survey was utilised where the responses were collected from the clientele of a private investment firm in South Africa. The first section consisted of the risk tolerance scale, the survey of consumer finance (SCF). The single risk tolerance self-report measure contained a single item: Which of the following statements comes closest to the amount of financial risk that you and your (husband/wife/partner) are willing to take when you save or make investments?

1. Take substantial financial risks expecting to earn substantial returns
2. Take above-average financial risks expecting to earn above-average returns
3. Take average financial risks expecting to earn average returns
4. Not willing to take any financial risks.

Furthermore, the questionnaire also asked participants to indicate their current subjective satisfaction with life (self-report measure). The responses of participants were rated using a seven-point Likert scale where the scale ranged from 1 (strongly agree) to 7 (strongly disagree). The five-factor (five statements) SWL scale (derived from 48 items) focused on emotional as well as judgemental aspects. The statements to rate participant's satisfaction with life were as follow:

1. In most ways, my life is close to ideal
2. The conditions of my life are excellent
3. I am satisfied with my life
4. So far I have gotten the important things I want in my life
5. If I could live my life over I would change almost nothing.

A Domain-Specific Risk-Taking (DOSPERT) scale which was developed by Weber et al. (2002) was utilised which allowed the researchers to assess the conventional risk attitudes (reported level of risk-taking) in five domains namely: ethical, financial (including gambling and investment), health and safety, social, and recreational decisions (Dickason, 2017).

3.4. Data Analysis and Reliability

Data analysis made use of the Statistical Packages of Social Sciences (IBM SPSS) version 25 and AMOS. Structural equation modelling (SEM) was employed. Although three validated scales were used in the questionnaire, internal reliability still had to be measured in the South African context. Life satisfaction obtained a Cronbach alpha value of 0.887. In terms of risk-taking and risk perception, the Dospert Scale obtained a Cronbach of 0.852 deemed as highly reliable. According to Malhotra et al. (2012), the reliability of a scale is dependent on the number of items in a scale, hence a value above 0.6 when using human respondents is acceptable in terms of internal reliability consistency for categorical variables. Therefore, both the life satisfaction scale and the Dospert scale were deemed highly reliably and could be used for further analysis.

4. RESULTS

This section reports the results of the collected and analysed data. The section provides the structural model and the model fit assessment as well as a graphical representation of the model.

4.1. Structural Model and Model Fit Assessment

The structured model is indicated and laid out for specification in Table 2 (Hardy and Bryman, 2004). Figure 1 indicates the structural model, which indicates the influence of the DOSPERT investor domain risk talking personality constructs and satisfaction with life on investor risk tolerance.

The comparative fit index (CFI) was also performed where a value of 0.85 was obtained. This was followed by the IFI and

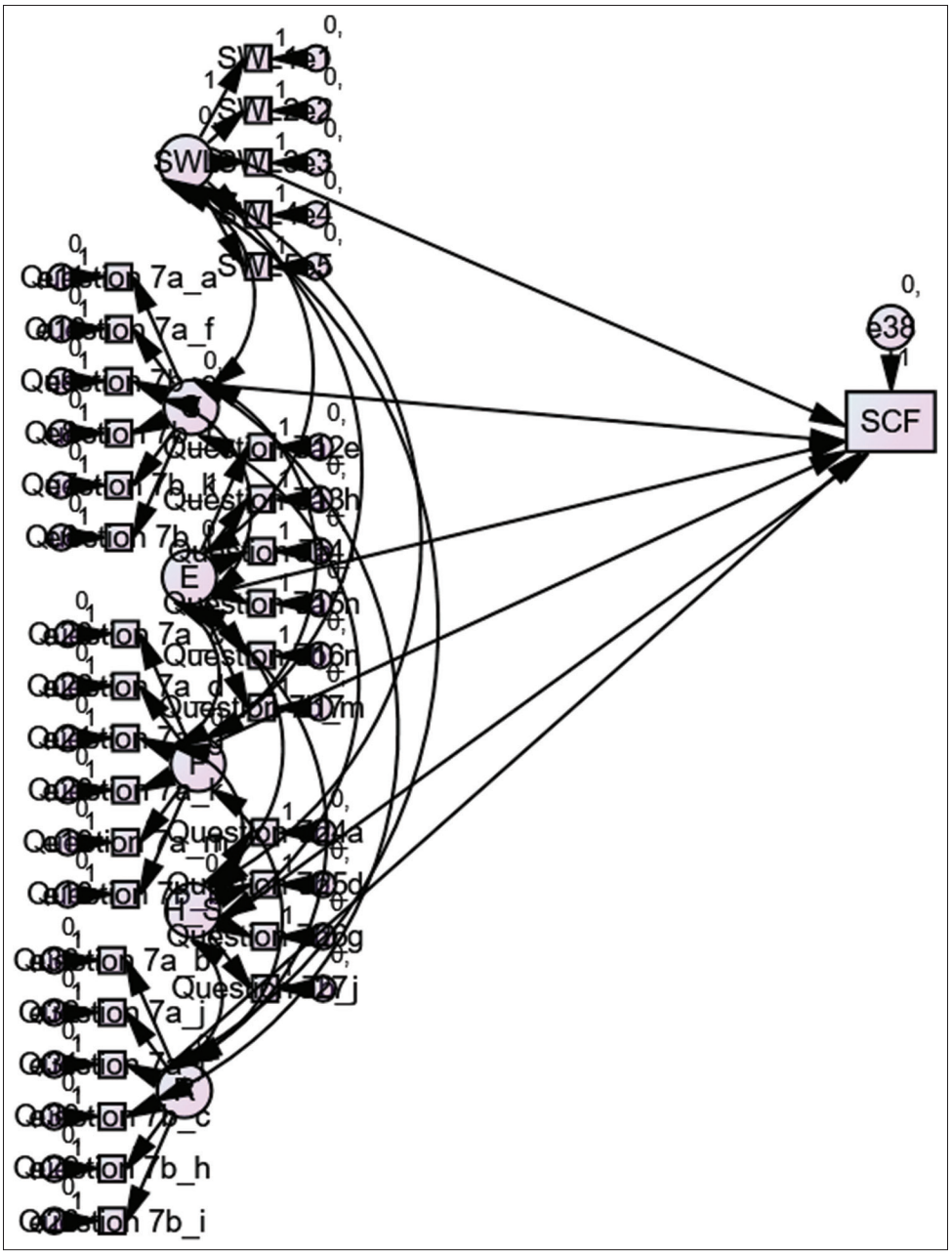
Table 2: Standardised weights: Investor domain risk talking personalities, satisfaction with life and risk tolerance

Constructs		Estimate	P-value
Risk tolerance			
<---	Satisfaction with life	0.068	0.023**
<---	Social	0.216	***
<---	Ethical	0.062	0.314
<---	Financial	0.123	0.004**
<---	Health and safety	−0.063	0.333
<---	Recreational	0.094	0.036**
TLI	0.85	CMIN/DF	4.579
IFI	0.83	RMSEA	0.055

***Significant at 0.01 level; **Significant at 0.05 level *Significant at 0.1 level

Figure 1: Structural model of investor risk tolerance, life satisfaction and investor domain risk taking personality

Figure 1 indicates the structural relationship between the dependent variable risk tolerance, investor personality and subjective satisfaction with life



the Tucker Lewis index (TLI) where values of 0.86 and 0.83 were obtained. Values that are closer to one indicates a better fit whereas those closer to zero indicated that the data do not fit the model (Malhotra et al., 2012). The values close to 0.9 indicates a marginal goodness-of-fit(Mueller, 1996). Absolute badness-of-fit indices require values that are lower since these measures measure error or deviation, for example, the chi-square test X^2, the root mean square residuals (RMSR the standardised root mean square residuals (SRMSR) and the root mean square error of approximation (RMSEA) (Malhotra et al., 2012). A RMSEA of 0.055 was found at the 90 percent confidence interval (0.053; 0.058) percent. The model is regarded as a good fit where the RMSEA is 0.05 or less than 0.08 (Blunch, 2008). Also, in this case, a CMIN/DF value of 4.579 was obtained where this value is still acceptable indicating a goodness-of-fit. Mueller (1996) argues that ratios between three and five are still acceptable as a good model fit.

Considering satisfaction with life in Table 2, this variable did significantly contribute towards predicting investor risk tolerance (standardised coefficient = 0.068), ($P < 0.05$) as it was significant at the 5% level. These results are similar to those of Mankuroane (2020) who found a positive relationship between risk tolerance and life satisfaction. More so, Masenya and Dickason-Koekemoer (2020) in their structural equation model also found satisfaction with life to be a contributing factor to investor risk tolerance.

The social investor personality construct did significantly influence ($P < 0.01$) investor risk tolerance to a strong degree as the squared multiple correlations (SMC) was significant (standardised

coefficient =0.216). The ethical investor personality construct did not influence investor risk tolerance ($P > 0.1$) with a standardised coefficient of 0.062.

The financial construct did also significantly influence ($P < 0.05$) investor risk tolerance to a small degree (standardised coefficient =0.123). A negative relationship also exists between investor risk tolerance and the health and safety construct (standardised coefficient = −0.063) where no significant influence was found ($P < 0.1$). The negative relationship between investor risk tolerance and health and safety can be expected since an individual's health consciousness will decrease when their risk tolerance increases. Considering the recreational investor personality construct a significant influence was found towards predicting risk tolerance to a small degree with a standardised coefficient of 0.094 ($P < 0.05$).

Figure 1 represents the structural model of investor risk tolerance, life satisfaction and investor domain risk taking personality.

5. CONCLUSION AND RECOMMENDATIONS

Successful investment decisions in harsh and uncertain times such as the last decade that investors find themselves in will only derive from the understanding of individual risk attitudes of investors. Therefore, research within investment companies is necessary to assist financial planners to accurately identify the factors that may influence their clients' financial risk tolerance and ultimately the performance of their portfolios. Therefore, the objective of this paper was to identify whether factors such as domain-specific risk-taking attitude (as a personality trait) and life satisfaction influence an investors risk tolerance level. As to date, very few researchers have attempted to model these three factors in an investment context.

This study contributed to the field of research in investment management using a SEM development. The development of this SEM was aimed to identify the risk-taking domain and life satisfaction of individuals that affect their subjective level of risk tolerance. The results from the SEM indicated that an investors satisfaction with life will affect their level of risk tolerance and hence their investment decisions. Therefore, the more satisfied an individual is with their life the more financial and investment risk they will be willing to take on. The social investor personality construct did significantly influence investor risk tolerance to a strong degree. The financial and recreational risk-taking domains also significantly influenced risk tolerance to a small degree. Hence, the risk-taking behaviour in these domains influenced the level of risk tolerance. These results were similar to those of previous researchers.

Several limitations have been identified in this paper which may offer opportunities for future research. The authors used a quantitative research approach to model investor behaviour where a mixed-method approach can be recommended whereby qualitative interviews can be conducted. This can assist to further investigate the reasons behind the irrational behaviour of South African investors. Dospert was only employed, whereas, Hexaco (a six-dimension personality measure) can be recommended together with Dospert. Another recommendation is to determine whether decisions and irrational investor behaviour are influenced by the asset types investors invest in. A final recommendation would be to include other investment companies in South Africa, and not only one investment company.

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