Understanding Behavioral Finance and Life Satisfaction Among South African Investors

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Abstract: The concept of behavioral finance is becoming more recognized in the financial and investment environment. The concept of behavioral finance implies that investors do not necessarily make rational investment decisions. It argues that investment decisions are often influenced by emotional or other non-rational factors, leading to irrational investment choices. The study aimed to figure out how investors among different age categories make investment decisions based on behavioral finance biases and their level of life satisfaction. Behavioral finance biases seem to be largely responsible for this deviation in investment decisions. Investors among all age categories tend to have representativeness bias. Older investors were also found to be more satisfied with their life than younger investors.

Keywords: behavioral finance, age, investors, satisfaction with life

One of the most known heuristics beliefs is that investors get less risk-tolerant as they become older. Marx, Mpofu (Ed.), De Beer (Ed.), Mynhardt (Ed.), and Nortje (Ed.) (2013) indicated that older individuals tend to invest in less risky portfolios. Various reasons are argued regarding the risk-averse attitude of older individuals (Bodie, Kane, & Marcus, 2013). Firstly, older age means limited time to recover from financial losses. Secondly, less risk aggressive investment opportunities are available in the limited time remaining. Thirdly, it is possible that older individuals are either not actively earning income anymore, have a limited life span to earn income, or are capable of earning less income than required. The whole financial industry accepted this notion and

promoted the idea that older individuals should not invest in risky opportunities and should be conservative in their investment approach (Pompian, 2016). In this context, one may argue that risk aversion may be a reality for older investors, but that willingness to assume investment risk cannot be dictated by age alone.

In contrast with older investors, young investors seem to have a higher risk tolerance level (Irwin, 1993). Younger investors have a longer time to recover from losses, more investment opportunities are available over time, still actively earning income, and have a long-time span to earn. A concerning and general known fact is that most individuals can only accumulate sufficient wealth to own a house during their lifetime (Marx et al., 2013). Thus, in addition to

the factors mentioned earlier, the financial position of an investor is probably significant, but not the only factor when analyzing the willingness to assume the investment risk. In line with the current tendency of longevity, the concern about whether sufficient financial provision has been made for retirement may play a significant role when considering investment options. The question is, is it sufficient to invest in low yielding, low-risk investments if financial provision for retirement is insufficient?

The answer to the question above might be related to the satisfaction of the life of an investor. This refers to an investor's satisfaction with life (SWL) as a whole (Tatarkiewics, 1976). Investors will be more accepting of low yielding, low-risk investments when they are more satisfied with their life. The opposite will be true for investors who experience a lower degree of satisfaction in their lives (Diener, Emmons, Larsen, & Griffin, 1985).

The overriding objective remains whether the investor can achieve the desired financial position by investing according to the individual risk profile. This relates to the financial rule of thumb, stating that the higher the required rate of return, the higher should the expected risk be to receive the required return (Bennet & Cusick, 2007). Therefore, a deviation may occur between the investment risk and rate of return relationship that investors are willing to take and the investment risk and rate of return relationship that are assumed in reality. The objective of this study is to ascertain whether certain age categories and their level of life satisfaction are affected by behavioral finance biases.

Literature Review

Bodie et al. (2013) highlighted the fact that individual investment policies should pivot around the range of investment opportunities available relating to the riskiness of each investment. It is further essential that prospective investors should be aware of their willingness to assume the risk. The goal of this approach is to create an investment portfolio that generates an acceptable rate of return and meet the risk profile of the investor. The investment portfolio of an investor is a pool of investment assets (Bodie et al., 2013). The investment assets can typically be grouped into broad asset classes such as bonds, shares, commodities, real estate, and others. Financial advisors construct an investment portfolio by making two investment decisions based on risk profile results. The first decision is the asset allocation decision, which involves the choice surrounding broad asset classes. The second decision is the security selection decision, which involves the choice of having certain securities within each asset class (Bodie et al., 2013). The choice of investment in terms of asset class and the willingness to assume risk will ultimately depend on the phase of the investment life cycle (Marx et al., 2013).

Investment theory suggests that there is an inverse relationship between age and willingness to assume the risk. Three phases of the individual life cycle exist, namely, the accumulation phase, consolidation phase, and the spending phase, as illustrated in Figure 1. Young investors will find themselves in the accumulation phase. This phase is characterized by substantial growth and a high degree of risk acceptance (Reilly & Brown, 2012). The consolidation phase is known as the mid-career phase, which is characterized by a long span where the investor is willing to assume the moderate risk. Investors within the consolidation phase display less aggressive and more conservative features (Marx et al., 2013). The long life span enables investors to recover from negative market returns, which may occur during an earlier life stage (Bodie, Siegel & Stanton, 2012).

According to Bodie, Kane, and Marcus (2007), the majority of investors approaching retirement will find themselves in the spending phase. During the spending phase, investors are characterized by low levels of risk tolerance along with an investment objective that is geared towards capital preservation rather than high rates of return. The reality, on the other hand, is that investors who should be in the spending phase are often forced to take on riskier investment options to generate sufficient capital. South Africa is ranked 130th out of 150 countries in terms of the ability to live comfortably, quality of health services, quality of financial services, and quality of life ("South Africa Among the Worst," 2015).

Investors are mainly classified as either a conservative investor, moderate investor, growth investor, or aggressive investor, depending on their willingness to accept risk (Pompian, 2016). In Table 1, the different types of investors based on their age and lifecycle are listed in correspondence with their willingness to assume the risk and the specific biases that this group might be subject towards. A conservative
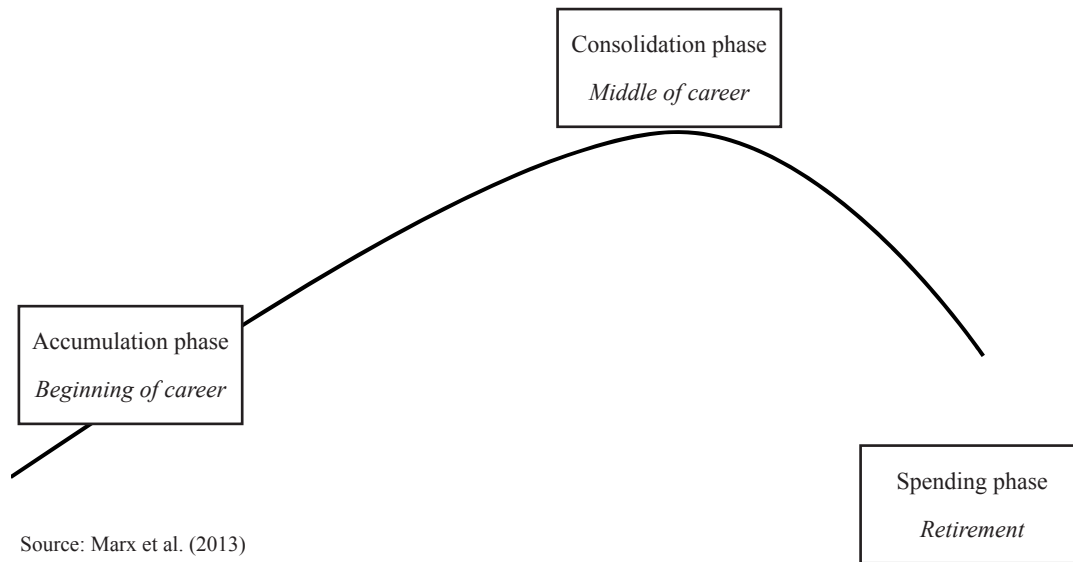
Consolidation phase

Middle of career

Accumulation phase

Beginning of career

Spending phase

Retirement

Source: Marx et al. (2013)

Figure 1. Individual lifecycle phases.

investor is characterized by a low willingness to assume the risk and can be influenced by typical emotional biases such as mental accounting, anchoring, and so on. A moderate investor has a moderate willingness to accept risk with typical biases such as regret and framing. On the other hand, a growth investor takes on higher risks with tendencies towards biases such as availability and representativeness. However, a growth investor has a high-risk tolerance, which is indicative of high-risk capacity and high-risk appetite (Pompian, 2016). The following section will elaborate on the various behavioral finance biases.

The conventional theory assumes that investors act rationally, and decisions are made to maximize wealth (Bhattacharya, 2012). However, market anomalies exist in investor behavior, which cannot be explained by such conventional theories of finance. Irrational investment behavior that may often contradict conventional theory is mainly triggered by the emotional and cognitive biases of investors (Bhattacharya, 2012). In this context, investor emotion as much as market fundamentals drive investor behavior (Bodie, Siegel & Stanton, 2012). Bhattacharya (2012) indicated that two theories, namely, the prospect and cognitive theories,

Table 1

Investor Age and Lifecycle Classification and Their behavioral bias

Investor type	Willingness to assume risk	Behavioral bias
Conservative Investor	Low	Endowment, loss aversion, status quo, anchoring, mental accounting
Moderate Investor	Medium	Regret, hindsight, framing, cognitive, dissonance, recency
Growth Investor	High	Conservatism, availability, confirmation, representativeness, self-attribution
Aggressive Investor	Very high	Over-confidence, self-control, affinity, illusion of control, outcome

Source: Pompian (2016)

exist in the domain of irrational investment. As such, the irrational behavior of investors is referred to and is known as behavioral finance.

The prospect theory highlights that there is a difference between the emphasis on perceived gains and perceived losses (Kahneman & Tversky, 1979). This theory states that the amount of gains has a smaller emotional and psychological impact on investors than losses (Bhattacharya, 2012). The prospect theory consists of the following biases: loss aversion, regret aversion, self-control, and gamblers fallacy (Kannadhasan, 2009). Loss aversion is based on prior gains and losses. The notion is that a loss experienced after a previous gain is less painful than usual because the previous gains function as a cover for the latest loss (Barberis & Huang, 2002). Singh (2012) indicated that people tend to be more sensitive to losses than gains, specifically where losses occur after previous losses, which makes the experience more painful than usual. Regret is an emotion experienced by investors when losses are realized due to erroneous choices (Zeelenberg & Pieters, 2007). Investors attempt to avoid the feeling of regret as it is not a favorable emotion to experience. With relation to mental accounting, investors tend to keep track of gains and losses in separate mental accounts (Bhattacharya, 2012). It is more beneficial to pay off expensive loans rather than to receive a low rate of return on income. Also, money received in the form of gifts are regarded as cheap and is more easily spent (Jagongo & Mutswenje, 2014). By exercising self-control, investments can be protected and losses minimized. Investors are open to temptations and should exercise self-control continuously (Subrahmanyam, 2007). Self-control can be defined as a measure commonly implemented by market participants who are subjected to the temptation of taking on larger financial risks. Investors' subject towards this bias will avoid large financial losses to protect financial assets (Kannadhasan, 2009).

Under cognitive theory, investors make biased investment decisions. The representative bias refers to investors that base investment decisions on stereotypes (Jain, Jain, & Jain, 2015). In other words, investors assume that future returns will be the same as past returns without considering the reasons for good historical returns. With overconfidence, investors believe they are smarter than other investors in terms of investment decisions (Bhattacharya, 2012). Overconfidence is the result when investors

overestimate their capabilities and ignore external factors, which could result in outcome variability and underestimating uncertainty (Jain et al., 2015).

Investors anchor themselves in a certain position where they fail to do enough market research and make the investment decision to cling to one specific piece of information. These investors are also stagnant and refuse to adjust to a changing environment (Kannadhasan, 2009). Incorrect estimations and predictions are made based on a set of events known as gambler's fallacy (Jahanzeb, Muneer, & Rehman, 2012). In this case, investors believe that if something happened recently in the market, the probability of the same occurrence decreases, and the probability of the opposite occurrence increases. Investors overestimate the probability of an event occurrence based on the most recent information available when making decisions (Kliger & Kudryavtsev, 2010). The availability bias causes investors to overreact to market results, whether positive or negative.

Methods

Sample

Data was collected from the clientele of a South African investment company. Although the choice of the company was based on convenience, the sample was selected randomly to obtain an unbiased sample. The total size of the sample was 1,171 (N=1171). The participants range in age from 16 years to over 50 years. The participants of the study received a questionnaire to complete via the South African investment company. This study was approved by the NWU Research and Ethics Committee and fulfilled the ethical requirements, clearance number ECONIT-2017-012. The research involving human subjects (including human material or human data) that was reported in the manuscript has been performed with the approval of an appropriate ethics committee.

Measuring Instrument

Not only is age an important factor when analyzing behavioral finance in investment decisions but also the level of satisfaction of life regarding investors (Diener et al., 1985). As mentioned previously, the SWL scale refers to a person's SWL as a whole (Tatarkiewics, 1976). Investors will be more accepting of low yielding, low-risk investments when they are more

satisfied with their life. The opposite will be true for investors who have a lower degree of satisfaction in their life (Diener et al., 1985). The respondents were asked to complete their demographic information first and then ranked behavioral finance biases from most relevant to least relevant. From the information, it could be concluded which biases are most relevant to which age group and how satisfied each age category are with their overall lives. In order to achieve this objective, the satisfaction with life scale (SWLS) was utilized using a seven-point Likert scale, which ranged from (1) strongly disagree to (7) strongly agree. The scale consists of five items that incorporate emotional and judgmental components. The SWLS measured the degree of satisfaction of an investor's life and indicated a degree of progressive stability over a period of time (Pavot & Diener, 1993). The SWLS obtained a Cronbach alpha value of 0.887, indicating a high level of shared variances among all questions; thus, a high level of reliability, as seen in Table 2.

Hypothesis

A null-hypothesis had to be stated to determine the statistical difference between the categorical variables.

Null hypothesis (H_{01}): Behavioral bias of age group 1 = behavioral bias of age group 2 (1)

Null hypothesis (H_{02}): Life satisfaction of age group 1 = life satisfaction of age group 2 (2)

A one-way analysis of variance test (ANOVA) was used as well as the Tukey post hoc test which is generally the most preferred test for conducting post hoc tests on a one-way ANOVA (Pallant, 2007).

Results

As represented by Figure 3, it can be concluded that this sample is composed out of three age categories; 16–34, 35–49, and 50+z. From the 1,171 respondents,

Table 2

Descriptive Statistics for SWL

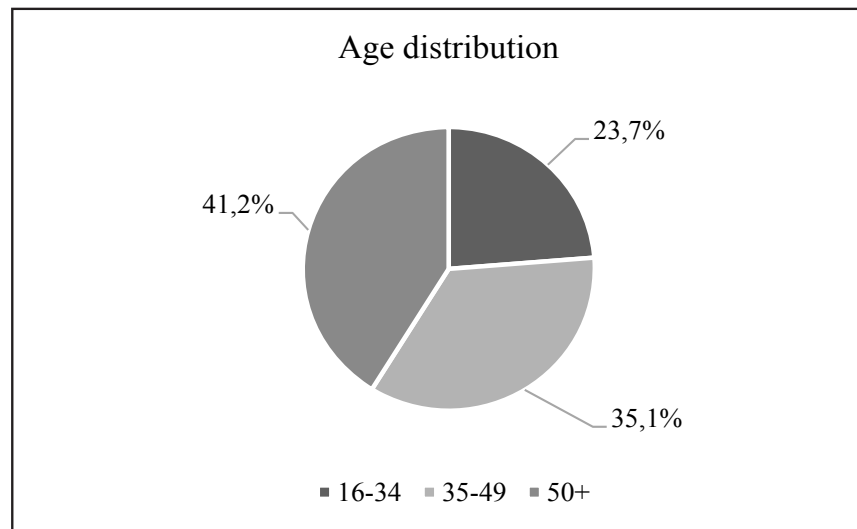| Construct	No of questions	Average inter-item correlation	Std Dev	Cronbach's Alpha
SWL	5	0.611	1.427	0.887

Figure 3. Age distribution.

23.7% fell into the age category 16–34, 35.1% fell into the age category 35–49, and the majority (41.2%) fell into the age category of 50+.

The behavioral finance biases are ranked in Table 3 from most relevant to least relevant according to the respondents' age category. From Table 3, the age category 16–34 tends to be more subject towards the representativeness bias (55.4%), availability bias (4.8%), and self-control bias (24.4%). Investors within the 16–34 age category will base their decisions on their own opinion and will follow what the market is doing without considering the reasons for historical returns (Kannadhasan, 2009). A small percentage of the investors in this category (4.8%) are also subject to the availability bias, indicating that these investors only make use of the most recent information when making financial decisions (Kliger & Kudryavtsev, 2010). This is coherent with investors in the accumulation phase, with a higher willingness to accept risk. However, this group of investors also ranked self-control in second place, indicating that they exercise self-control when making financial decisions to protect financial assets.

For the age category 35–49, the representative bias (44.1%), availability bias (8.2%), and the self-control (26.4%) bias was most dominant among all biases. The availability bias for the age category represented almost 8.2% of the respondents and causes investors to overreact to market results, whether positive or negative (Kliger & Kudryavtsev, 2010). These results

concur with the theory behind a moderate investor, who has a medium risk tolerance in relation to biases such as self-control (Reilly & Brown, 2012). A moderate investor will be in the consolidation phase and will implement self-control regarding financial decisions after being in the accumulation phase, which was accompanied by a higher level of risk acceptance (Pompian, 2016).

The majority of the age category 50+ ranked the representative bias as most relevant when making investment decisions. As a result, this bias is most likely to influence the investment decisions of the age category 50+. The second bias was self-control, representing 34.6% of this age category. The percentage of investors' subject towards this bias is much higher for the 50+ category than the other age categories. For this age group, the alternative hypothesis that the behavioral biases for different age groups are not the same could be concluded. Hence, older investors with much lower risk tolerance in the last phase of the investor lifecycle will strongly exercise self-control when making financial decisions (Marx et al., 2013). As mentioned in the literature, these investors have a shorter life-span to recover from losses and will, therefore, protect financial assets (Bodie, Siegel & Stanton, 2012). The regret aversion bias was ranked third (7.2%), which indicates that this category of investors tends to be regretful of some financial decisions made during earlier stages of the investor lifecycle.

Table 3

Rank Results of Behavioral BiasRank Results of Behavioral Bias

Bias	16-34	35-49	50+
Representativeness	55.4%***	44.1%***	40.4%***
Overconfidence	4.1%	2.7%	1.7%
Anchoring	1.8%	1.5%	0.9%
Gamblers fallacy	0.4%	0.2%	1.5%
Availability bias	4.8%*	8.2%*	5.7%
Loss aversion	2.6%	4.0%	3.5%
Regret aversion	2.6%	7.5%	7.2%*
Mental accounting	4.1%	5.2%	4.6%
Self-control	24.4%**	26.4%**	34.6%**

***, **, * indicate the ranking of the biases in first, second, and third place, respectively, according to each age category.

Table 4

Significance of Age Groups and Their Satisfaction With Life (SWL)

SWL	Sum of squares	Df	Mean Square	F	Sig.
Between Groups	1151.702	2	757.851	15.230	0.000
Within Groups	58120.107	1168	49.760		
Total	59635.809	1170			

There was a statistically significant difference among the age groups, as the one-way ANOVA indicated in Table 4, where the F-value = 15.230 and p = 0.000 was smaller than 0.05. This result indicated that there was indeed a statistically significant difference among the three age groups concerning their SWL. However, to determine exactly where this difference laid, a Tukey post hoc test had to be executed to see how satisfied each age category is with their lives. Table 5 also indicated the mean values for each age group. Investors older than 50 years of age had a higher life satisfaction (23.18) than investors between the ages of 35 to 49 (21.00). Investors between 16 and 34 had the lowest life satisfaction (20.71) of the three age groups, which can be indicative of unfulfilled investment objectives.

The Tukey post hoc test indicated the multiple comparisons revealed that the SWL of age category 50+ was statistically and significantly different to age categories 16–34 and 35–49. Therefore, the null hypotheses were concluded because the SWL between age category 16–34, age category 35–49 and 50+ differs. Hence, the age category 50+ was more satisfied with their lives than age categories 16–34 and 35–49. This concurs with the investor lifecycle because this group of investors has paid off debt, is exposed only to lower-risk investments, and is currently in retirement (Marx et al., 2013). There was no statistically significant difference between age category 16–34 and age category 35–49, where p = 0.855. For the 16-34 age category, the null hypothesis was accepted.

Discussion

Behavioral finance biases were prevailing for all age category investors. As seen in Table 6, the age category 16–34 tend to be more subject towards behavioral finance biases such as representativeness, self-control, and availability, in this specific order. This result concurs with the theory behind the investor lifecycle that states that young investors will have a higher degree of risk acceptance (Bodie et al., 2007). The age category 16–34 was the least satisfied with their lives, which indicates that they still have a strong desire to take on risky investments to achieve financial desires.

Table 5

Multiple Comparison Between Age Categories and Satisfaction of Life

Age categories	Age categories	Mean values	Mean Difference	Std. Error	Sig.
16-34	35 – 49	21.00	-.293	0.548	0.855
	50+	23.18	-2.475	0.531	0.000*
35 – 49	16 – 34	20.71	.293	0.548	0.855
	50+	23.18	-2.183	0.474	0.000*
50+	16 – 34	20.71	2.475	0.531	0.000*
	35 – 49	21.00	2.183	0.474	0.000*

* indicate the rejection of H_0 at the 5% level of significance

Source: Authors compilation

Table 6

Summary Results

Investor age	Willingness to assume risk	Behavioral bias	Satisfaction with life
16–34	High	Representativeness, Self-control, Availability bias	Low
35–49	Medium	Representativeness, Self-control, Availability bias	Moderate
50+	Low	Representativeness, Self-control, Regret aversion	High

For the age category 35–49, representativeness bias also ranked first, followed by the availability bias and self-control. This result is formed by the investor lifecycle, where an investor in the consolidation phase will regret risky financial decisions during the accumulation phase. The availability bias for the age category causes investors to overreact to market results, whether positive or negative. These results concur with the theory that a moderate investor has a medium risk tolerance with relation to biases, such as self-control. This group was also second-most satisfied with their lives, which is in conjunction with the consolidation phase, where a large portion of the debt is already paid off, and some financial desires (buying a house or car) are already achieved. There was no significant difference between age category 16–34 and the age category 35–49.

In the age category 50+, representative bias was ranked yet again first, followed by self-control and regret aversion. As a result, investors that are 50+ are more likely to make investment decisions contradictory to market expectations (Bodie et al., 2007). Hence, older investors with much lower risk tolerance in the last phase of the investor lifecycle will strongly exercise self-control when making financial decisions. These investors have a very short life-span to recover from losses and will make decisions in such a way as to protect their financial assets. Investors older than 50 tend to be regretful of some financial decisions made during earlier stages of the investor lifecycle. This group of elderly investors was also found to be the most satisfied with their lives because they have paid off all debt, are exposed only to lower-risk investments, and are currently in retirement.

Investors, in general, regard their own perception/ opinion as important to make investment decisions,

which is indicated by the representativeness bias (Baker & Ricciardi, 2014). The representativeness bias was mostly ranked as the first choice; in other words, the bias that is most relevant to all respondents irrespective of their age category. As per the theory, this bias indicates that investors tend, most of the time, to overreact in making investment decisions due to their own perceptions and opinions. This result is contrary to conventional theories of finance, which assumes that investors act rationally and disagree that market anomalies do exist.

Different emotions experienced in making investment decisions are labeled as behavioral finance biases, which may lead to or cause subjective investment decision-making (Thaler & Johnson, 1990). From this study, it can be concluded that all age categories of investors are subjected to behavioral finance biases, which are influenced by their age (investor lifecycle) and their overall satisfaction with their lives.

Conclusion

The concept of behavioral finance is becoming more recognized in the financial and investment environment. However, new research in this field is limited. The concept of behavioral finance implies that investors do not necessarily make rational investment decisions (Thaler & Johnson, 1990). It argues that investment decisions are often influenced by emotional or other non-rational factors leading to irrational investment choices. SWL is not always a set concept and may vary according to the demography of investors (Diener & Pavot, 1993).

Investors can be classified into various categories of life satisfaction based on demographical factors.

Different levels of life satisfaction can cause a deviation between expected and actual investment choices of an investor (Diener et al., 1985). Behavioral finance also plays a vital role in the investment decisions making process, as certain biases can have an adverse effect on an investor's financial position (Shleifer, 2000).

This paper aimed to determine whether a difference exists between the behavioral finance biases to which investors among different age categories are subject to and their level of life satisfaction. The results indicated that investors between the age of 16 to 34 have, according to the theory, a high willingness to assumes the risk. In this paper, these investors were found to be subject to the representativeness, availability, and self-control bias. Investors between the age of 16 to 34 were also found to have the lowest life satisfaction. Investors between the age of 35–49, which are generally in the consolidation phase of the investor lifecycle, will have a medium willingness towards risk. These investors showed similar results towards representativeness, availability, and self-control biases. These investors had a slightly higher life satisfaction than younger investors.

Recommendations for further research may be to measure SWL before investment and after an investment decision have taken place. This study also makes the recommendation to investment companies to include the SWL in their investor risk profiles. By incorporating SWL, investment companies may have more refined investment options to offer their investors.

Declaration of ownership:

This report is our original work.

Conflict of interest

None.

Ethical clearance

This study was approved by the institution.

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