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Age, Gender and Dispositional Greed as Psycho-social Correlates of Financial Risk Tolerance

[1]Sylvester O. **ATIRI**
&
[2]Olakunle A. **POPOOLA**
oapopoola@unilag.edu.ng

[1&2]Department of Psychology
University of Lagos, Lagos
Lagos State, Nigeria

Abstract

This study was aimed at understanding how psycho-social factors predict financial risk tolerance. The study adopted a cross-sectional design and a convenience sampling technique on a sample of Nigerian undergraduates drawn from the Department of Psychology of the University of Lagos. Participants were administered questionnaire containing demographic questions such as age and gender; Dispositional Greed Scale (DGS) for evaluation of greedy behaviour and the Grable-Lytton Risk Tolerance Scale (GL-RTS) for financial risk tolerance assessment. First, we explored how age is related to financial risk tolerance. Second, we analyzed the gender difference in financial risk taking and finally, we analyzed how dispositional greed is associated with financial risk tolerance. Results showed no significant relationship between age and financial risk taking (p >.05), no gender difference in financial risk tolerance (p >.05) and no significant relationship between dispositional greed and financial risk tolerance (p >.05). Additionally, the interaction effect of age and gender failed to predict financial risk tolerance (p >.05). The results suggest that understanding financial risk tolerance is a complex process that goes beyond the exclusive use of psycho-social factors such as age, gender and dispositional greed; thus, these factors should be used with caution by financial planners when assessing investors' risk tolerance.

Keywords: Age, gender, dispositional greed, psycho-social, financial risk, tolerance

Introduction

Financial Risk Tolerance (FRT) refers to an individual's willingness to accept the negative changes in the value of investment or an adverse outcome that is different from the expected one (Grable & Lytton, 1999a, 1999b). In other words, it is the maximum amount of uncertainty an individual is willing to accommodate when making a financial decision (Grable & Joo, 2004). Financial risk tolerance plays a crucial part in individual choices about 'debt versus savings' decisions, use and management of credit cards (Campbell, 2006), wealth accumulation (McInish, Ramaswami & Srivastava, 1993; Guiso & Paiella, 2004; Yao, Gutter & Hanna, 2005), retirement savings (Jacob-Lawson & Hershey, 2005), portfolio allocation (Hariharan, Chapman & Domian, 2000), insurance (Cutler, Finkelstein
& McGarry, 2008), and all other investment and finance-related decisions that are important in achieving long term financial goals. It is therefore reasonable to expect that people with varying levels of risk tolerance to act differently when making investment decision with those having high risk tolerance investing more aggressively and vice versa. Inappropriate assessment of levels of risk tolerance of individuals may lead to sub-optimal investment decisions and may result in disappointment (Droms, 1987) and increased financial burden on investor, which in turn, affects his/her financial risk behaviour (Kannadhasan, 2015).

Under the academic framework of decision making, human financial risk taking has particularly generated a large body of interest from various fields due to its clear relevance to human lives and how people differ in the way decisions involving risk and uncertainty are handled (Blais & Weber, 2006). Academic researchers in the fields of personality psychology, organizational behaviour, decision research, economics and other social science fields have examined the system of financial decisions making, using two basic approaches. One of the approaches is the traditional approach which involves the application of the economic and financial normative models (von Neumann & Morgenstern, 1947; Kahneman & Tversky, 1979). The other approach which is less common relies on psychology and neuroscience (Fitzsimons, Hutchinson, Williams, Alba, Chartrand, Huber & Tavassoli 2002; Hastie, 2001; Mellers, Schwartz, & Cooke, 1998; Weber & Johnson, 2009). The earlier approach which is anchored on expected utility and prospect theories

assumes individuals are completely rational when faced with complex financial choices. These theories do not take into consideration the psychological influences on decision making. However, the current trend in the field of financial decision making relies on the later-developed psychological techniques, but still incorporates some of the traditional theories from the first economic model (Weber & Johnson, 2009). The risk tolerance of an individual is a multidimensional attitude that changes over time as it is influenced by life experiences (Van de Venter, Michayluk & Davey, 2012). For instance, individuals sometimes systematically deviate from rationality when making financial decisions. In this context, the willingness to take risk is linked to the predisposition of the subject itself (Rowe, 1977; Baird and Thomas, 1985). Some studies (Eisen, Lin, Lyons, Scherrer & Griffith, 1998; Cesarini, Dawes, Johannesson, Lichtenstein, & Wallace, 2009; Kuhnen & Chiao, 2009) have shown that financial risk taking behaviours may have some genetic predisposition. For examples, classical twin design studies by Cesarini et al. (2009) and Eisen et al. (1998) respectively estimate that genetic factors account for 20% variation in risk taking in experimental lottery choices and between 35–54% of the liability for developing symptoms of pathological gambling. These individual differences in heritable traits may also account for the individual variation in the willingness to take financial risks. FRT is therefore an elusive concept that appears to be influenced by a number of predisposing factors (Trone, Allbright & Taylor, 1996) such as economical, social and psychological factors. A classical example of economic influence on FRT is the global financial meltdown in 2008 which caused a worldwide decline in international trade (‘‘World Economic Outlook,’’ 2009) and credit availability, weakening the currency value and increasing inflation and unemployment in Nigeria. This resulted in weakened investors’ confidence (Umanhonlen & Lawani, 2015) and increased financial vulnerability of investors (Bricker, Bucks, Kennickell, Mach & Moore, 2011; Yao & Curl, 2011). Such a scenario changes the level of FRT and emphasises the importance of a periodic assessment of FRT (Yao & Curl, 2011).

Considering the importance of Financial Risk tolerance in investment decisions, previous studies (Horvath & Zuckerman, 1993; Mittra, 1995; Malkiel, 1996; Grable, 1997; Grable & Lytton, 1999a, 1999b; Coleman,

2003; Grable & Joo, 2004; Hallahan, Faff & McKenzie, 2004 and others) have investigated a number of predicting factors namely, demographic, social, environmental, and psychological factors across countries over a period of time. Horvath and Zuckerman (1993) reported that one's biological, demographics and socio-economic characteristics; together with his/her psychological makeup affects one's risk tolerance. Hallahan et al. (2004) worked on a sample of individuals mostly sourced from the clients of financial planners. They found that gender, income, and wealth were significantly positively associated with financial risk tolerance, with a negative relationship between risk tolerance and age and marital status. Malkiel (1996) suggested that individual's risk tolerance may be related to length of years in service, knowledge, sophistication, income and net worth. In addition to poor investment decisions resulting from inadequate assessment of investors' risk tolerant levels, Elvin, (2004) also argued that the lack of understanding of the market and individual differences are reasons traders lose money. He further added that traders trade without method, strategy or discipline and fall prey to powerful emotion, which leads to impulsivity and behaviours more akin to gambling than to genuine understanding (Elvin, 2004). This is evidenced with some research that have examined the role of emotion in decision making (Camerer, Loewenstein, & Prelec, 2005; Bechara & Damasio, 2005; Loewenstein, Weber, Hsee & Welch, 2001). There is a common belief that emotions in general (Camerer et al., 2005; Loewenstein et al., 2001), fear and anxiety (Johnson & Tversky, 1983; Kuhnen & Knutson, 2011; Lee & Andrade, 2011; Lerner & Keltner, 2001; Raghunathan & Pham, 1999; Tiedens & Linton, 2001), fear and excitement (Kuhnen & Knutson, 2011; Lee & Andrade, 2015) affect judgement and the ability to achieve optimal financial decisions.

Age and Financial Risk Tolerance

Age remains one of the most studied demographic variables in financial risk behaviour (Kannadhasan, 2015). Morin and Suarez (1983) studied the relationship between age and the holding of risky assets such as stocks, bonds, mutual funds, real estate, equity in own business, and loans, using 1970 Canadian Survey of Consumer Finance data. Morin and Suarez (1983) found that, risk aversion (opposite of risk tolerance)

increased with increase in age. A study by Riley and Chow (1992) focused on asset allocation and individual risk aversion in a sample of U.S. households. Riley and Chow derived relative risk aversion indexes from actual asset allocation and found that risk aversion decreased with age until 65, then increased significantly. Similar study was also carried out by Bakshi and Chen (1994) for aggregate U.S. time series data. Bakshi and Chen (1994) concluded that risk aversion increases as the population ages. In contrast to these findings, risk aversion was found to decrease as population ages in a population of wealthy investors (McInish, et al., 1993; Cohn, Lewellen, Lease, & Schlarbaum, 1975). Investors aged 45 to 54 held the highest proportion of risky assets while those younger than 45 years old held the highest proportion of their total assets in non-risky assets. This claim was also consistent with the work of Wang and Hannah (1998) who reported that the proportion of net wealth invested in risky assets increases as people age (that is, risk aversion decreases and risk tolerance increases). A more recent study by Tymula, Rosenberg Belmaker, Roy, Ruderman, Manson, Glimcher and Levy (2012) also reported similar findings. Tymula et al. investigated risk and ambiguity attitudes in adolescents, and compared preferences for risky and ambiguous monetary lotteries in 33 adolescents (12–17 years old) and 32 adults (30–50 years old) using a standard incentive-compatible technique widely used in economics (Harrison & Rutstrom, 2008) and neuroscience (Levy, Snell, Nelson, Rustichini, & Glimcher, 2010). Result showed that although younger people (adolescents) were more willing to accept ambiguous conditions, this is the situations in which the likelihood of winning and losing is unknown; they were more risk-averse to clearly-stated risks than their older counterparts.

Gender and Financial Risk Tolerance

Gender differences in financial risk tolerance has received lots of scholarly attention and previous studies have suggested that males are more risk tolerant than females (example, Bernasek & Jianakoplos, 1999; Hariharan et al., 2000; Hartog, Ferrer-I-Carbonell & Jonker, 2002). It is commonly believed that men are generally more overconfident (Lundeberg, Fox, & Punc´ochar´ 1994) and risk-seeking than women (Cook & Bellis, 2001), especially in financial matters (Prince 1993).A study by Barber & Odean

(2001) focused on the gender differences in overconfidence and common stock investment in a sample of 37,664 households. In their study, high levels of trading on financial markets were attributed to overconfidence of investors about their abilities, their knowledge, and their future prospects. The result of their study showed considerable evidence that men and women have different attitudes toward risk, as it was discovered that men are less risk averse than women. Barsky, Juster, Kimball, and Shapiro (1997) conclude that women are more risk-averse than men from a sample of 5200 males and 6400 females. Analyzing off-track betting slips for 2000 men and 2000 women, Bruce and Johnson (1994) •find that men take bigger risks than women although no evidence of differences in performance was observed. Jianakoplos and Bernasek (1998) report that roughly 60 percent of the female respondents to the 1989 Survey of Consumer Finances, but only 40 percent of themen, said they were not willing to take any financial risks. Karabenick and Addy (1979), Sorrentino, Hewitt, and Raso-Knott (1992), and Zinkhan and Karande (1991) observe that men have riskier preferences than women. Flynn, Slovic, and Mertz (1994), Finucane, Slovic, Mertz, Flynn, and Satterfield (2000), and Finucane and Slovic (1999)•found that white men perceive a wide variety of risks as lower than do women and non-white men. These findings have been consistently supported by other studies such as Hallahan et al. (2004); Moreschi (2004); Yao, Gutter and Hanna (2005); Watson and McNaughton (2007); Al-Ajmi (2008) and more recent studies such as Gilliam, Chatterjee and Grable (2010); Neelakantan (2010); Jefferson and Ong (2010); Austen, Jefferson and Ong (2010) and Dohmen, Falk, Huffman, Sunde, Schupp and Wagner (2011) are also in consonant with earlier findings. Despite the widely supported claim of risk tolerability of men than women, a study has however reported an insignificant relationship between gender and financial risk tolerance (Grable & Joo, 1999).

Disposition Greed and Financial Risk Tolerance

Greed has been a topic of discussion for as long as the acquisition of wealth and power exists. Early scholars such as the Greek antiquity have written extensively about the topic, and also today greed is often discussed and debated (Robertson, 2001). The general perceptions of

greed range from very positive to very negative. Thucydides (460–395 BCE) perceived greed as not necessarily negative, because it motivates progress (Zagorin, 2005) and positive economic outcomes (Greenfeld, 2001; Melleuish, 2009), Plato (427–347 BCE) detailed on how greed resulted in war, civil conflict, and immorality and how it is inherent to human nature (Balot, 2001), and Aristotle (384–322 BCE) argued that greed is confusion between what we actually need and what we ideally want (Wang & Murnighan, 2011). Some other scholars condemn greed because of its immoral and exploitative qualities; one of them was Stigler (1981). Later, Hume (1739 and 2001) argued that greed is as a double-edged sword: on the one hand it motivates people to perform better, but on the other hand it has destructive consequences for society. Greed is discussed and condemned in virtually all world religions. For example, In Christianity, greed is regarded as the foundation of all sin and one of the seven deadly sins in the Catholic faith (Tickle, 2004), Buddhism and Hinduism believe that it leads to bad karma and obstructs spiritual development (Nath, 1998; Sundararajan, 1989), while Judaism and Islam also share similar belief and they oblige their worshippers to share their wealth with charities as a means of providing solution to greed (Bloch, 1984; Oka & Kuijt, 2014). From the evolutionary perspective, greed is considered an important evolutionary motive that promotes self-preservation (Robertson, 2001; Saad, 2007) and hence, vital for human welfare (Greenfeld, 2001; Williams, 2000). People who are more predisposed to gain and hoard as many resources as possible are argued to be better off and thus have an evolutionary advantage (Cassill & Watkins, 2005).

Although greed is a popular topic and much is written about its causes and consequences, the numbers of studies that have empirically addressed the effects of greed on people's behaviour is scarce (Wang & Murnighan, 2011). However, in the last few years, researchers have started to develop interest in the topic as evident from recent literatures (for example; Gilliland & Anderson, 2011, 2014; Haynes, Campbell, & Hitt, 2014; Haynes, Hitt, & Campbell, 2015; Wang, Malhotra, & Murnighan, 2011; Wang & Murnighan, 2011; Krekels, 2015; Mussel, Reiter, Osinsky, & Hewig, 2015) in various fields related to economic psychology, marketing and neurosciences. Previous studies that have reported a

possible link between greed and financial behaviour investigated the link between greed and income (for example; Mussel, Reiter, Osinsky, & Hewig, 2015; Seuntjens, Zeelenberg, Van de Ven & Breugelmans, 2015; Van Muijen & Melse, 2015), overearnings (Hsee, Zhang, Cai, & Zhang, 2013; Seuntjens, Zeelenberg, Van de Ven, & Breugelmans, 2016), spending (Seuntjens et al., 2015), savings and debt (Livingstone & Lunt, 1992; Lunt & Livingstone, 1991; Seuntjens et al., 2016). In the current research, we relate greed to another type of financial risk behaviour. We look at how greed influences young adult's financial risk tolerance. Although, few studies have reported the influence of these variables on one's Financial Risk Tolerance, however the findings are mixed with no clear consensus. Additionally, because FRT is an elusive concept that varies from one individual to another, one country to another, and one period to another, it is exigent to assess this concept periodically. This will help investors choose investment options in accordance with their individual differences in these psycho-social factors and thereby reduces their risk behaviour.

This study aims to contribute to the understanding of some of these psycho-social factors that predict financial behaviour. Specifically, we focus on the influence of demographic variables such as, age and gender, and dispositional greed as a psychological construct on FRT in a sample of 200 young adults comprising of Nigerian undergraduates. We investigate if individual differences in these factors are predictive of FRT in young adults. We hypothesized that financial risk tolerance will increase significantly as age progresses (Hypothesis 1), men will be more risk tolerant than women (Hypothesis 2) and a significant positive correlation between dispositional greed and financial risk tolerance (Hypothesis 3). Additionally, we hypothesized an interaction effect of age and gender on financial risk tolerance (Hypothesis 4).

Methodology

A cross sectional survey research design was employed in this study to gather information such as demographic characteristics, dispositional greed and financial risk tolerance of participants in the study. The study population comprises of 198 Nigerian undergraduates recruited from the Department of Psychology of the University of Lagos. The choice

of this sample is based on their convenient accessibility and proximity to the researcher. Participants comprised of male aged 19-37 years (M = 19.66, SD = 1.63) and female aged 17-31 years (M = 22.6, SD = 3.53). Data were collected from participants by using a structured questionnaire which contains the following:

(1) Demographic variables: Respondents were told to indicate their ages, gender, marital status and ethnic groups

(2) The Dispositional Greed Scale (DGS) (Seuntjens et al., 2015): Individual differences in greed were assessed using the DGS which consists of seven items. Participants were asked to respond on a 5-point scale from 1 ("strongly disagree") to 5 ("strongly agree"). The internal consistency and reliability of the scale has been reported in previous study using four different samples (Seuntjens et al., 2015). Across all four samples, the internal consistency ranged between .43 and .78 while the Cronbach's alpha ranged from .82 to .90 which indicates that all items have acceptable internal consistency and reliability.

(3) Grable-Lytton Risk Tolerance Scale (GL-RTS) (Grable & Lytton, 1999). This is a 13-item scale that measures one's willingness to tolerate financial risk. The scale is composed of three subscales. Questions 4, 5, 8, 11, and 12 addressed investment risk; questions 1, 3, 6, 7, and 13 evaluated financial risk and questions 2, 9, and 10 measured speculative risk. Total risk tolerance scores were obtained by summing the individual scores from the 13 questions, with higher scores descriptive of increased financial risk tolerance. Finally, risk tolerance measure was scaled on a range of 1 to 4, with 1 being most risk averse and 4 being most willing to take risk. Grable and Lytton (2015) reported a Cronbach's alpha reliability of .77.

Upon signing the consent form, participants responded to the questionnaire. The anonymity and confidentiality of the data were emphasized, and the doubts about the procedure for completing the questionnaire were solved. In this study, we are interested in the relationship between age, gender, dispositional greed and FRT. First, to find the age and gender differences in FRT, the study employed one-way ANOVA and independent t-test analysis with descriptive statistics to test whether the mean level in FRT significantly differs among age

categories and between both genders respectively. Further, bivariate correlation was used to verify the relationship between age of respondents as a continuous independent variables and FRT as a continuous dependent variable. Second, to understand the relationship between dispositional greed and FRT, the study employed simple regression. Lastly, interaction effect of age and gender on financial risk tolerance was estimated by using factorial analysis of variance.

Results

Table 1 below shows the distribution as well as the corresponding mean level of financial risk tolerance and the standard deviations. The results of the comparison of mean levels of financial risk tolerance among the age and gender categories are presented in Table 2. The one-way ANOVA used to compare between the mean FRT score of different age categories and the independent sample *t*-test used to evaluate gender differences in FRT showed no significant differences. Bivariate correlation statistics employed to further verify the relationship between age (as a ratio scale) and FRT also produced insignificant relationship. Lastly, the simple regression analysis employed to determine the relationship between dispositional greed and FRT (refer to Table 3) also showed no significant relationship. Table 4 shows the result of the interaction effect of age and gender on financial risk tolerance.

Table 1: ***Distribution of financial risk tolerance by age and gender***

Age	Sex	N	Mean	*SD*
16-20yrs	Male	31	27.10	4.30
	Female	63	28.02	3.87
	Total	94	27.71	4.02
21-25yrs	Male	34	29.44	4.92
	Female	28	28.43	3.97
	Total	62	28.98	4.51
26-30yrs	Male	3	25.00	11.53
	Female	3	31.00	7.00
	Total	6	28.00	9.14
31-35yrs	Male	1	31.00	0.00
	Female	0	0.00	0.00
	Total	1	31.00	0.00
35yrs and above	Male	1	27.00	0.00
	Female	0	0.00	0.00
	Total	1	27.00	0.00

Survey, 2015

The result in Table 1 shows that participants in the age bracket 35 years and above had the least financial risk tolerance (27.00) while the highest was that of 31 to 35 years (31.00).The age categories '31 to 35 years' and'35 years and above' were poorly represented in the sample as both categories had only 1 respondent each which are from the male gender.

Table 2: ***Relationship between age, gender and financial risk tolerance***

Hypothesis	Classification	N	M FRT	*SD*	t/F/r Value	Sig.	Results
H_1	*Age (Nominal scale)*						
	16-20yrs	9 4	27.71	4.02	0.88	0.477	Insignificant
	21-25yrs	6 2	28.98	4.51			
	26-30yrs	6	28.00	9.14			
	31-35yrs	1	31.00	0.00			
	35yrs and above	1	27.00	0.00			
	Age (Ratio scale)	164	28.22	4.45	0.064	0.416	Insignificant
H_2	*Gender*						
	Male	7 1	28.27	5.03	0.7	0.944	Insignificant
	Female	9 6	28.22	3.95			

Survey, 2015

No significant difference exist between the financial risk tolerance of males and females (t = 0.7, p = 0.944). Likewise, no statistical significant difference exist in the mean comparison of the financial risk tolerance of the different age categories (F = 0.88, p = 0.477). Similarly, there exist no relationship between age (ratio scale) and financial risk tolerance (r = 0.064, p = 0.416). Hence, hypothesis 1 and 2 are rejected.

Table 3: ***Relationship between dispositional greed and financial risk tolerance***

Hypothesis	Variables	Coefficient	t-Value	Sig.	Result at 5% CI
H_3	DG and FRT	0.099	1.143	0.255	Insignificant
R = 0.090, R2 = 0.81%, F = 1.31, p > 0.01					

Sig. at 5%

The result above shows that the relationship between dispositional greed and financial risk tolerance is positive (0.099), however, based on the t-value (1.143) and p-value (0.255), we would conclude that this relationship is statistically insignificant. Hence, there is no statistically significant positive relationship between dispositional greed and financial risk tolerance. Therefore, we reject hypothesis 3.

Table 4: ***Interaction effect of age and gender on financial risk tolerance***

Hypothesis	Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Result at 5% CI
H_4	**Corrected Model**	157.164[a]	7	22.45	1.14	0.340	
	Age	81.06	4	20.27	1.03	0.394	
	Gender	44.73	1	44.73	2.27	0.134	
	Age * Gender	83.11	2	41.56	2.11	0.124	Insignificant
	Error	3068.93	156	19.67			
	Total	133826.00	164				

[a] *R Squared = .049 (Adjusted R Squared = .006)*

The results above indicate that the overall model is statistically significant (F= 1.14, p = 0.340). Further, the variables age (F = 1.03, p = 0.390), gender (F = 2.27, p = 0.134) and the interaction between age and gender (F = 2.11, p = 0.124) are also not statistically significant. Therefore, we reject the fourth hypothesis.

Discussion

The results of this study show that age difference was unable to explain differences in the level of financial risk tolerance in the sample of population. The relationship between age progression and financial risk tolerance was statistically insignificant. This finding supports the work of Grable and Lytton (1998, 1999) and contradicts some studies that reported a negative relationship (Hawley & Fujii, 1993; Sung & Hanna, 1996; Bajtelsmit & VanDerhei, 1997; Finke & Huston, 2003; Hallahan et al., 2004;Jianakoplos & Bernasek, 2006; Al-Ajmi, 2008; Kannadhasan, 2015) and a positive relationship (Cohn et al., 1975; McInish et al., 1993; Wang & Hanna, 1998; Grable, 2000; Tymula et al., 2012) between financial risk tolerance and age.

Similarly, there exist no significant difference in the financial risk tolerance of men and women. Therefore, gender did not contribute in explaining differences in the level of financial risk tolerance. Although, several literatures (Sung & Hanna, 1996; Bajtelsmit & Bernasek, 1996; Grable & Lytton, 1999a, 1999b; Grable, 2000; Hallahan et al., 2004; Al-Ajmi, 2008; Kannadhasan, 2015) have reported a high level of FRT in men than women, this finding is not in support of the widely reported claim. This study however corroborates with the work of Grable and Joo (1999) that identified no gender differences in financial risk taking.

The relationship between dispositional greed and financial risk tolerance in the sample of population was also not significant. This finding is not consistent with the work of Breda and Berlamont (2014) who found a positive relationship between Social Dominance Orientation (SDO) and financial risk taking. In their study, greed was operationalized by measuring the level of SDO (Cozzolino & Snyder, 2008) and their result reports that participants with a high SDO (more greedy) show a higher level of risk-taking than participants with a low SDO (less greedy). Similarly, the finding is also not in line with the literature of Shefrin (2002).

In summary, although, demographics and personality trait such as greed have been identified in past studies as major determinants to risk tolerance, the report of this study however shows that age, gender and dispositional greed do not predict level of financial risk tolerance in the sample of Nigerian undergraduate students.

Recommendations

- Further studies should not be limited to age and gender demographics; other related demographics such as ethnicity, religion, rural or urban residency and socio-economic status and other psychological constructs should be considered and captured for analysis, as these will add to the richness of the findings.
- Also, adjusting the focus of further studies on more financially independent age categories such as 35 years and above might reveal different evidence taking into cognoscenti the desire to spend their earnings more wisely and taking more calculated risk when investing.

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