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Beyond Intentions: The Role of Past Investment Behaviors in Driving Mutual Fund Investments and Risk Tolerance.

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Abstract

This study examines how habitual investing patterns and behavioral intentions jointly shape mutual fund investment behaviour in an emerging economy. Drawing on dual-process theory, it benchmarks the influence of reflective (intentional) and impulsive (habitual) systems, addressing the intention–behaviour gap in retail investing.Data were collected from 423 mutual fund investors in India through a structured survey. Partial Least Squares Structural Equation Modelling (PLS-SEM) analysed the effects of habit strength, intentions, risk perception, perceived behavioural control, financial goals and technology-related factors, with emphasis on the habit–intention interaction.Habit strength was a strong predictor of investing behaviour, reducing reliance on intentions and narrowing the intention–behaviour gap. Strong habits enhanced perceived behavioural control, lowered risk perception and positively moderated the influence of financial goals—including retirement planning, asset acquisition and emergency fund preparation—on investing behaviour. Technology-related factors showed only partial indirect effects through habit formation.

Keywords: Habits, Behavioral intentions, Investing behaviour, Dual-process theory, Emerging economy, Risk perception

1.Introduction

Household financial stability and independence are critical for long-term well-being and social resilience (Pellinen et al., 2015). Achieving these goals often requires consistent saving and investing behavior (Allom et al., 2018). While traditional economic theories describe financial decisions as rational, conscious, and deliberate (Shim, Serido, and Tang, 2012), behavioral research increasingly highlights the role of automatic, habitual actions that operate outside conscious deliberation (Loibl, Kraybill, and DeMay, 2011; Neal, Wood, and Drolet, 2013).

Regular saving and investing through habitual routines can outperform purely intention-driven behaviors, as habits persist under time pressure, cognitive fatigue, or declining motivation (Wood and Rünger, 2016). Unlike ad hoc, rational deliberation that often leads to "analysis paralysis," habitual actions require minimal cognitive effort and are more resilient to stress or uncertainty (Berkman, 2018). While the benefits of habitual saving are well established (Fisher and Anong, 2012), the potential role of habits in *investing*—which involves higher risk and complexity—remains underexplored (Sunderarajan and Perumandla, 2022). Investing, unlike saving, involves greater volatility and perceived risk (Barber et al., 2006; Sunderarajan and Natarajan, 2021). Consequently, the notion that automatic or habitual investing can yield better outcomes may seem counterintuitive. However, empirical evidence—such as consistent mutual fund inflows through Systematic Investment Plans (SIPs)—suggests that repeated investment behavior can become routinized, reducing behavioral inertia (Del Guercio and Tkac, 2002; Shah et al., 2019). This habitual participation could bridge the low retail investor participation observed in emerging markets like India (SEBI, 2016).

Past research examining financial habits has largely focused on saving rather than investing, often using the Theory of Planned Behavior (TPB) (Ajzen, 2013; Loibl, Kraybill, and DeMay, 2011). While TPB emphasizes intentions as the key determinant of behavior, it fails to account for the "intention–behavior gap" (Sheeran, 2002; Sheeran and Webb, 2016)—the frequent failure of strong intentions to translate into action. Dual-process theory (Strack, Werth, and Deutsch, 2006; Evans, 2008) addresses this limitation by distinguishing between reflective

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(intentional) and impulsive (habitual) systems that jointly influence behavior. The "habit–intention interaction" hypothesis (Triandis, 1977) posits that as habits strengthen, they can override or weaken the effect of intentions on behavior.

Building on this framework, the present study develops and empirically tests a **dual-process model** of mutual fund investing behavior in an emerging market. It incorporates both reflective and impulsive systems, alongside risk perception, perceived behavioral control, and financial goals. The study also controls for the influence of digital automation, given the rise of technology-mediated investing. Using survey data from 423 mutual fund investors and Partial Least Squares Structural Equation Modelling (PLS-SEM), this research examines how habit strength interacts with intentions and other behavioral determinants to explain actual investing behavior.

The study contributes to behavioral finance by:

1. Extending dual-process theory to the domain of mutual fund investing;

2. Demonstrating the compensatory role of habits in reducing the intention–behavior gap; and

3. Providing insights for financial educators, fund houses, and policymakers seeking to promote long-term investing through habitual mechanisms such as SIPs.

2. Theoretical background and hypothesis development

The authors in this section presented the relevant theoretical aspects so as to arrive at the proposed hypothesis of the study.

2.1 Dual process theory model

The dual-process theory posited that behaviors were explained by two processes or systems (DeCoster and Smith, 2000). This was a reflective one that was deliberate, evaluative and controlled involving intentions and goals (Strack, Werth and Deutsch, 2006). There was also an impulsive one that was fast, automatic, used unconscious processing, involved habits and heuristic judgement rules (DeCoster and Smith, 2000). Both systems were portrayed as having partially independent paths to drive behaviors (Alós-Ferrer and Strack, 2014). The dual-process theory become relevant in the field of economic theory helping interpret behavioral concepts and bounded rationality principles in an economic context (Alós-Ferrer and Strack, 2014). It has also been used to study how self-control, saving habits and impulsive buying affected saving intentions and behaviors (Allom et al., 2018). Other applications included study of exercise habits and exercise behaviors (Kaushal et al., 2020). The theory formed the basis of the conceptual model refer to Figure 1 where in behavioral intentions (BI) and habit strength (FQPB) were dipicted, in parallel, to drive investing in mutual funds (BEH).

2.1.1. Investing Behaviors

The primary objective of this study was to test the influence of past investing habits (frequent past behaviors) on future mutual fund investments in the presence of intentions. The authors measured investing behaviors (BEH) as a self-reported likelihood of investing in mutual funds on a scale from Not at all likely (1) to Very likely (6) based on similar measures in literature (Loibl, Kraybill and DeMay, 2011; Menozzi, Sogari and Mora, 2015; Sivaramakrishnan, Srivastava and Rastogi, 2017). To further understand investor types, the authors also measured their relative asset preferences as the likelihood of investing in: equity (stocks and derivatives), debt (bonds and deposits), physical assets (gold\real estate), insurance products and cash (Nagarajan et al., 2011). These were selected as the most preferred asset classes based on industry surveys (Ramadorai et al., 2017).

2.2.2. Habit- Intentions interaction hypothesis

Behavioral intentions were the most widely used proxy for behaviors and were described as "the underlying motivational factors which influenced the behavior of investors. This represented how investors were willing to experiment, how much effort investors were assigning to invest so as to undertake a behavioral action." (Morwitz and Munz, 2021). There was high correlation, indicated the evidence of presence of "intention-behavior gap" (Sutton, 1998; Sheeran, 2002; Sheeran and Webb, 2016). The common reasons cited for this gap included: starting trouble (procrastination, second thoughts), avoiding progress monitoring driven by a need to perpetuate "good news" or to avoid "bad news" (the "ostrich effect"), competing goals; bad habits; decay in motivation due to fatigue on completion of first task (Sheeran and Webb, 2016).

Habits were defined as the psychological predisposition to repeat past behaviors that yield rewarding outcomes and were triggered by contextual clues in a stable context (Ouellette and Wood, 1998; Neal et al., 2012). Ouellette and Wood, (1998) in their meta-analytic review found repeated behaviors under a stable context were more likely to become habits, and were independent of reported intentions. Whereas under unstable contexts individuals reduced the predictive role of habits (Ouellette and Wood, (1998). Habits created an efficiency in action by shrinking a range of responses to one behavior. Since habits were only responsive to specific contextual triggers they did not require costly and vigilant monitoring (Berkman, 2018). Once habits formed these were impervious to stress, fatigue and time pressures and continued to drive behaviors even under conditions of low motivation (Neal, Wood and Drolet, 2013). Studies (Limayem, et al., 2007; Brown, Hagger and Hamilton, 2020; Morwitz and Munz, 2021) demonstrated future behaviors were significantly influenced by frequent past behaviors with a sizeable correlation of 0.39 suggesting past behaviors are a measure of habit strength (Ouellette and Wood, 1998). A commonly used measure across multiple studies was the frequency of past behaviors (FQPB) ((Neal et al., 2012; Brown, Hagger and Hamilton, 2020). This was assumed to be a continuum with habits of weak\moderate strength performed with lower frequency to strong habits performed at higher frequency. The authors adopted this measure of habits in this study.

A core hypothesis linking habits and intentions was the "Habit-Intention" interaction hypothesis proposed by Triandis, (1977). Trisndis (1977) stated that states that probability of an action was a function of the weighting of habit strength, behavioral intention and facilitating conditions. Habits by virtue of their automaticity weakened the impact of intention on action. This facilitated conditions wherein actions would be guided more by habit than intentions (Limayem, et al., 2007; Gardner, Lally and Rebar, 2020). Gardner, Lally and Rebar, (2020) reported that the most common method to test this hypothesis was to examine the significance of the product of intention and habit scores. In line with this the authors enhanced the conceptual model in Figure 1 to include an interaction between habit and intention and state the first study hypothesis H1 in two parts:

H1A: Increasing habit strength ceteris paribus will reduce the influence of intentions on behaviors

H1B: Habits interact with intentions in a multiplicative relationship (moderation)

2.2.3. Habits and Perceived behavioral control (PBC)

Perceived behavioral control (PBC) refered to the perceived ease or difficulty in performing a behavior and was part of the reflective model in Figure 1. Higher past behavior frequency that has been rewarding could enhance the feeling of having control and this in turn would positively influenced intentions and behaviors (Ouellette and Wood, 1998; Morwitz and Munz, 2021). Armitage, (2005) based upon a longitudinal study reported that habitual actions of going to the gym\exercising resulted in PBC becoming a dominant predictor of exercise behaviors. Kaushal et al., (2020) using an integrated behavior change model examined the availability of exercise equipment on exercise behaviors and found habits improved behavioral control by providing a perception of fluency, familiarity (Wood, Mazar and Neal, 2022). Habits also improved the perception of control by reducing feelings of strain and stress over complex decisions (Loibl, Kraybill and DeMay, 2011). The authors therefore considered habits to moderate PBC positively and included this in the conceptual model and propose our second hypothesis:

H2: Habits positively moderate the effect of perceived behavioral control on investing behaviors

2.2.4. Habits and Risk (RA, RP)

Since investing behaviors involved risky decisions, the authors considered risk related constructs to add to the conceptual model. Studies of savings behavior (Devaney, Anong and Whirl, 2007; Fisher and Montalto, 2010; Fisher and Anong, 2012; Magendans, Gutteling, and Zebel, 2017) revealed that risk tolerance was a key predictor of saving intentions and behaviors. Risk tolerance could be defined as the "maximum amount of uncertainty a person is willing to take when making a financial decision" (Kannadhasan, 2015). Authors expected that like savings to find risk tolerance a factor in investing intentions and behaviors and include this in the conceptual model. The authors used the analogous construct risk aversion (RA) as a proxy for risk tolerance as it also measures how willing a person is to make a risky choice. Apart from risk aversion we consider risk perception (RP) as the other risk measure. This has been defined as the mental process individuals applied to assimilate information regards the consequences of a future event. This was based regarding subjective probabilities. Multiple studies (Kannadhasan, 2015; Hoffmann and Post, 2017; Munnukka, Uusitalo and Koivisto, 2017) support the notion of both measures of risk driving investing behaviors directly a well as through intentions (Munnukka, Uusitalo and Koivisto, 2017). It was expected that lower risk aversion and risk perception would increase investing patterns. Exploring interaction of habits and risk factors found that in social commerce and general IT use, habitual users had lower risk perceptions and were less conscious of trust considerations – a case of "familiarity breeds contempt" (Vishwanath, 2015; Farivar, Turel and Yuan, 2017; Guinea and Markus, 2020). The authors considered risk aversion to be a stable personality related trait and contend that it will not be moderated by habits (Sitkin and Weingart, 1995; Weber, Blais and Betz, 2002). In other words, levels of risk aversion remain the same across different domains and situations whereas risk perceptions could change with context as demonstrated by (Nosi'c and Weber, 2010; Roszkowski and Davey, 2010). This brings us to the next two hypotheses:

H3: Habits do not moderate the influence of risk aversion on investing behaviors

H4: Habits moderate (weaken) the influence of risk perception on investing behaviors

2.2.5. Habits and Goals

Research regarding savings behavior research emphasized that "motives" or saving goals (financial) was a key predictor of saving amounts (Devaney, Anong and Whirl, 2007; Fisher and Montalto, 2010). Goals were defined as often an expected final state with achieved along with a set of contributing factors which facilitated the predetermined goal (Berkman, 2018). Sheeran, Webb and Gollwitzer, (2005) reported that when habits were present, situational cues which activated goals and goal activation evoked behavior. Goals like intentions were a motivational factor driving an individual to act and regulate their behavior (Fisher and Anong, 2012). Explaining the habit-goal interface scholars had (Wood and Neal, 2007; Neal et al., 2012) reported that once strong habits were formed, the mediating goals were no longer explicitly remembered. Habits continued to interface with certain goals that promoted repetition, encouraged cues that triggered responses and preserved learned associations of cue-to-responses (Wood, Mazar and Neal, 2022). When habits in daily life were congruent with such goals then habits improved the adherence to goals even when self-control was low (Neal, Wood and Drolet, 2013). Kruglanski and Szumowska, (2020) however challenged the notion of habit-goal independence and suggested habits that were purposive goal driven and were sensitive to the value and expectancy of rewards attained. Scholars recommend setting goals defined with rewards and expectancy to enable suitable habitual behaviors to be developed. The authors proposed that goals were moderated by habits and add this interaction effect to the conceptual model leading to the generation of the fifth hypothesis:

H5: Habits moderate goals to increase investing behaviors

2.2.6. Controlling for Technology automation

With increasing usage of online technology investors were able to setup automatic investment mechanisms. This facilitated regular investment that make them appear to be investing regularly though no human agency was involved (Pavlou and Fygenson, (2006). This could confound the study of habitual behaviors. To separate the psychological drivers from effects of automation the authors controled the effects of technology on habits, intentions and behaviors. The authors incorporate two constructs from the Technology Acceptance Model (TAM) (Davis, 1989; Venkatesh and Davis, 2000;). Perceived usefulness (PU), the degree to which an individual believed that using technology would enhance their performance was added and Perceived ease of use (PEOU) - the degree to which an individual believed that using technology would be productive was also added Pavlou and Fygenson, (2006). A significant positive relation of PU and PEOU directly with investing behaviors (BEH) or through intentions (BI) or habits (FQPB) would imply that technology played a significant role in indirectly\directly driving behaviors. On the other hand, no significant relation would imply that technology had insignificant role when other dominant psychological factors coexisted.

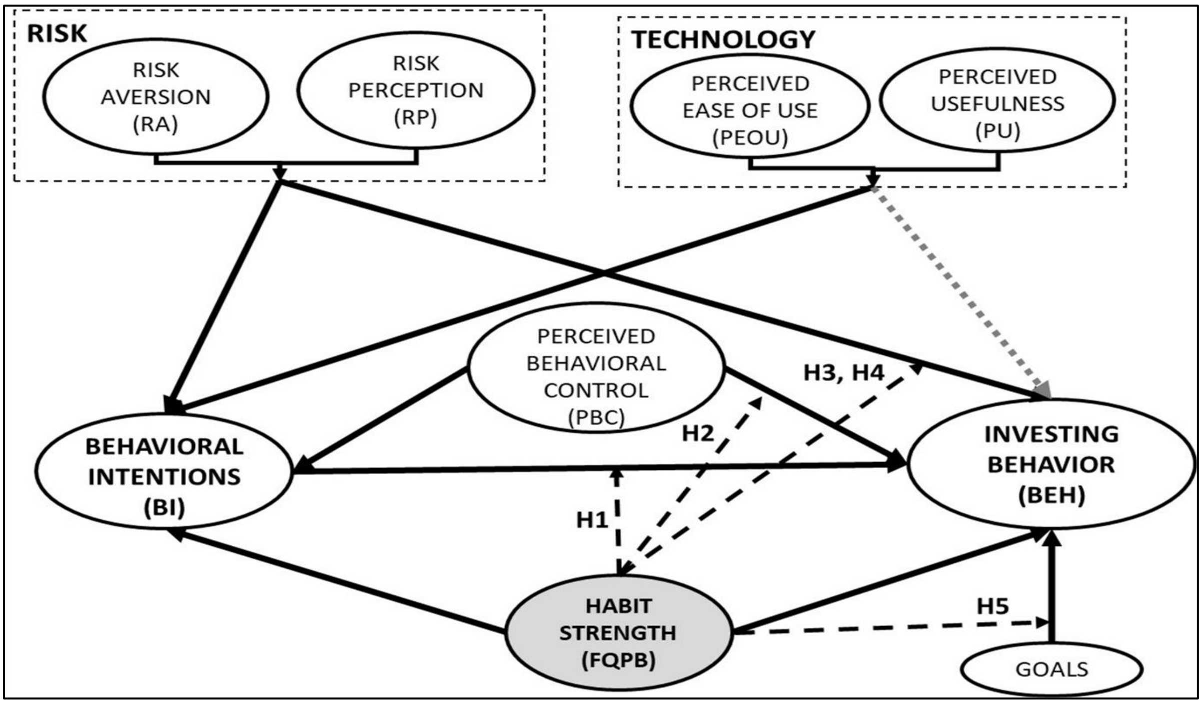

Figure 1 – Conceptual model based on the dual-process theory with reflective and impulsive processes through behavioral intentions (BI) and habit strength (FQPB) driving investing behaviors (BEH). The dashed lines represent moderation effects of habits according to the five hypotheses H1 to H5.

The final conceptual model containing the dual processes, constructs being studied, its inter-relationships and hypotheses proposed has provided in Figure 1.

3. Research Methodology

The authors in this section present the study research methodology.

3.2. Preliminary data analysis

Table 1- Variables in the study with measurement scales and their references. Default is a 7-point Likert scale with Strongly Disagree (1) to Strongly Agree (7) unless otherwise specified.

Study Variable	Measure
Behaviors (BEH) (Menozzi, Sogari and Mora, 2015; Sivaramakrishnan, Srivastava and Rastogi, 2017)	How LIKELY are you to invest in the next 1 year in the following assets: Mutual Funds, Equity, Deposits, Gold\Real Estate, Insurance and Cash? 1-Not at all likely to 6-Very Likely
Frequency of Past behaviors (FQPB) (Neal *et al.*, 2012; Neal, Wood and Drolet, 2013)	How OFTEN have you invested in mutual funds in the past 1 year? 1-Never to 7 - Very many times

Study Variable	Measure
Behavioral Intentions (BI) (East, 1993; Ajzen, 2013)	BI1 - I PLAN to invest in mutual funds in the next 1 year. 7-point Likert scale of Not at all (likely) to Extremely likely BI2 - I INTEND to spend time and money to invest in mutual funds in the next 1 year.
Perceived Behavioral Control (PBC) (Pavlou and Fygenson, 2006; Ajzen, 2013)	PBC1 - I have all the necessary resources such as TIME and MONEY to invest in mutual funds in the next 1 year PBC2 - If I wanted to, I am CONFIDENT I can invest in mutual funds in the next 1 year PBC3 - Investing in mutual funds in the next 1 year is completely in my CONTROL PBC4 - If I wanted to, I would be ABLE to invest in mutual funds in the next 1 year
Risk Aversion (RA) (Sharma, 2010)	RA1 - I do not like taking too many chances to avoid making a mistake RA2 - I tend to avoid talking to strangers RA3 - I would not describe myself as a risk-taker
Risk Perception (RP) (Pavlou and Fygenson, 2006; Hoffmann and Post, 2017)	RP1 – I consider investing in mutual funds to be risky RP2 – I feel the probability of loss from investing in mutual funds to be high RP3 – Investing in mutual funds may not meet my return expectations
Perceived Usefulness (PU) (Davis, 1989; Venkatesh and Davis, 2000)	PU1 - I think online investing is useful PU2 - Online investing would improve my effectiveness in investing PU3 - Online investing would enable me to accomplish investment tasks quickly
Perceived Ease of Use (PEOU) (Davis, 1989; Venkatesh and Davis, 2000)	PEOU1 - Learning online investing would be easy for me PEOU2 - Interaction with an online investing system would not require a lot of mental effort PEOU3 - I would find an online investing system flexible to interact with
Financial Goals (GOALS) (SEBI, 2016; Sin, Murphy and Lamas, 2019)	You can choose from 1 to a maximum of 3 goals: Retirement Asset Purchases e.g., house, car etc. Paying of debt – home loans, credit card debt Maintaining a Standard of living Education – own, for children Starting a Business Creating an emergency fund Estate planning – leaving a legacy

Source: Authors' own analysis & compilation.

Table 2 – Respondent demographics and socio-economic information in ***percentages***, sample size = 423. A lakh is ₹'00,000 (~US $1,250 @ 2022 rates).

Variable	%	Variable	%
Gender		**Age**	
Male	86	20 to 30 years	11
Female	14	31 to 40 years	44
		41 to 50 years	34
		51 to 60 years	10
		Above 60 years	1
Marital Status		**Education**	
Single	14	Post-Graduate	58
Married	86	Graduate & below	37
		Diploma	5
Income		**Occupation**	
Below 3 lakhs	2	Private Employee	61
3 to 6 lakhs	27	Self-Employed\Biz	24
6 to 9 lakhs	24	Govt Employee	11
9 to 12 lakhs	9	Others (Ret\Housewife\ Student)	4
12 to 24 lakhs	15		
Above 24 lakhs	23		
Financial Goals for Investing			
Retirement	46	Emergency fund	40
Standard of Living	41	Leave a Legacy	33
Asset purchases	41	Pay off debt	26
Start a Business	22	Education	17
Geographical zones			
South	33	North	12
West	28	Central\ North East	5
East	22		

Source: Authors' own analysis & conceptualisation

The data was collected by authors based upon a structured questionnaire. The survey questionnaire was sent by e-mail to savers\investors in India. 423 valid responses were received from across five geographical zones. All measures and scales used in the questionnaire were adopted from previous research for similar constructs as tabulated in Table 1. The demographic profile of the respondents has been provided in Table 2. This was representative of the target saver\investor population based on similar national surveys (Nagarajan et al., 2011; SEBI, 2016).

Sample size adequacy was tested through a power analysis (Erdfelder et al., 2009 - G*Power tool) with inputs of threshold statistical power set to 0.80, effect size set to 0.07 and 15 predictors. The calculated sample size required was 282 and this established sample size adequacy. Response data was checked for absence of common method bias (CMB) using the Harman single factor test (Hair et al., 2019). This test revealed shared variance of 27% which was less than the threshold of 50%. There was absence of non-response bias (Hair et al., 2019). This was checked using the Levene t-test of variance between samples collected a month apart this indicated that no significant differences (Hair et al., 2019). Skew and kurtosis of response data was within ±2.58, this implied that normal data was present was Multi-collinearity was ruled out through a full collinearity test based on the Variance Inflation factor (VIF) (Kock, 2015). The and maximum VIF was < 3 for all constructs (Kock, 2015). These results have been tabulated in table-3.

Table 3 – Construct validity test with threshold values for Cronbach Alpha and Composite Reliability > 0.7 and > 0.8 respectively. For Uni-dimensionality requirements first eigen value should be > 1 and the second eigen value < 1. Acceptable threshold value for Average Variance Extracted (AVE) is 0.5.

Constructs	Cronbach Alpha	Composite Reliability	1st Eigen value	2nd Eigen value	AVE
RA (Risk aversion)	0.78	0.87	2.09	0.55	0.59
RP (Risk perception)	0.89	0.93	2.45	0.32	0.82
PU (Perceived usefulness)	0.93	0.95	2.63	0.19	0.88
PEOU (Perceived ease of use)	0.84	0.90	2.27	0.43	0.76
PBC (Perceived behavioral control)	0.84	0.89	2.68	0.51	0.67
BI (Behavioral intentions)	0.77	0.90	1.63	0.37	0.81

Source: Authors' own analysis & conceptualisation

Cronbach alpha, composite reliability of constructs as well as eigen values from a principal component analysis was carried all constructs have reliability above 0.7 and were uni-dimensional loading on a single factor.

4. Analysis

The authors in this section presented the data analysis. The analysis of response data was performed using a Partial Least Squares structural equation modelling (PLS-SEM) technique chosen due to its ability to handle complex nested models with multiple dependent relationships (Vincenzo Esposito Vinzi et al., 2010).

4.2. Evaluating the Research model

Analysis of the conceptual model (Figure 1) provided results that were evaluated in two stages. First stage was regarding evaluation of the measurement model with reliability and validity tests of the indicators. The second stage was evaluation of the structural model with path coefficients and explained variance (R^2). Bootstrapping was employed to compute mean and significance of indicator loadings and weights, path coefficients and R^2 values (Hair et al., 2019). The authors in **Error! Reference source not found.** presented the measurement model with various constructs, the indicators with loadings and weights (in brackets) and significance.

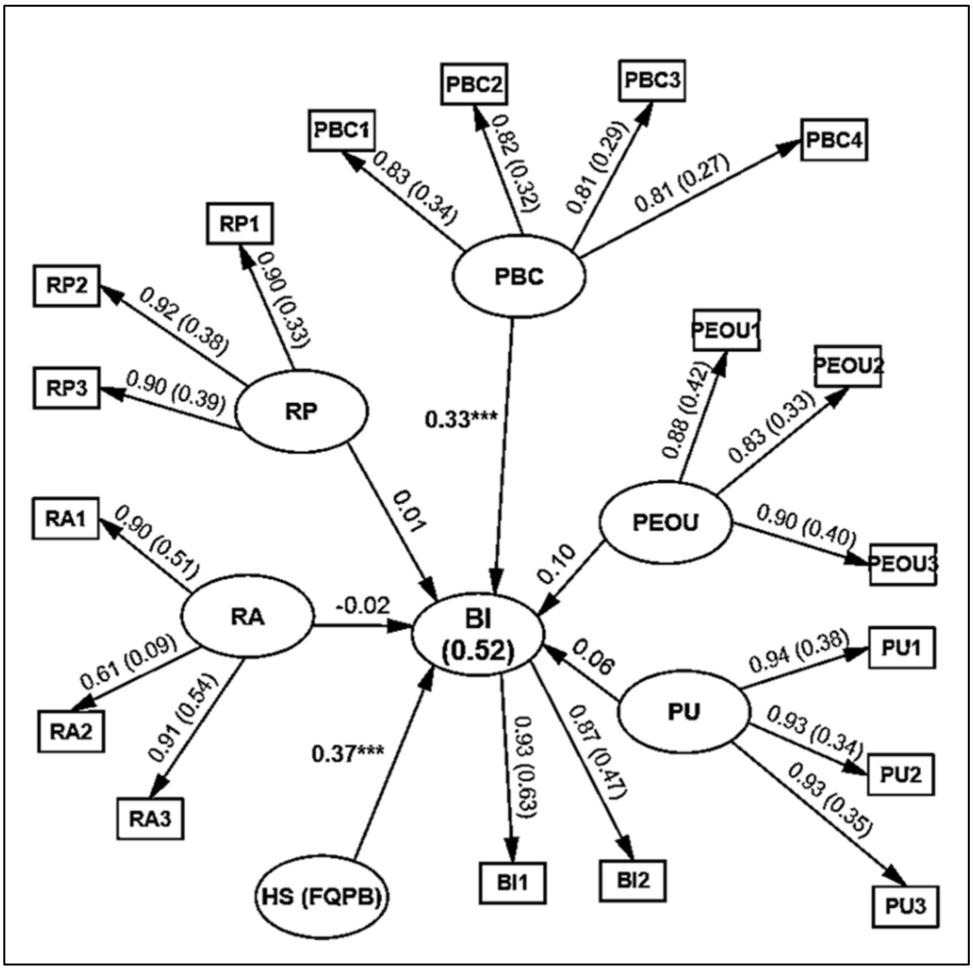

Figure 2 – PLS path model for behavioral intentions (BI) with R2 = 0.52. Standardized path coefficients are displayed along paths connecting BI from RA, RP, PBC, PU, PEOU and habit strength FQPB; paths between the constructs and their indicators have path loading and weights within brackets. Significance is indicated by ***, p-value < 0.001.

Indicator reliability was confirmed by checking if item loadings were > 0.707 and significantly non-zero, (values between 2.5th and 97.5th percentiles did not contain zero) (Chin. 2010). Only one item RA2 was found to have a loading of 0.61 but it was significant and its weight was 0.09 (RA1 and RA3 had weights > 0.5) so its effect was proportionately reduced (Vincenzo Esposito Vinzi et al., 2010). Construct reliability was confirmed from Table 3 through Cronbach's alpha, composite reliability and uni-dimensionality checks (Hair et al., 2019). Convergent validity was established noting that Average Variance Extracted (AVE) from Table 3 was above threshold of 0.5 for all constructs (Chin. 2010; Vincenzo Esposito Vinzi et al., 2010).

Table 4 – Discriminant validity test for constructs. First six columns contain the square of the inter-construct correlation i.e., variance shared by two constructs. Last column is Average Variance Extracted (AVE) and for discriminant validity AVE must be greater than the shared variance with every other construct.

	RA	RP	PU	PEOU	PBC	BI	AVE
RA	1	0.02	0.03	0.09	0.02	0.01	0.59
RP	0.02	1	0.11	0.10	0.23	0.12	0.82

PU	0.03	0.11	1	0.50	0.33	0.23	0.88
PEOU	0.09	0.10	0.50	1	0.28	0.22	0.76
PBC	0.02	0.23	0.33	0.28	1	0.40	0.67
BI	0.01	0.12	0.23	0.22	0.40	1	0.81

Source: Authors' own analysis & conceptualization

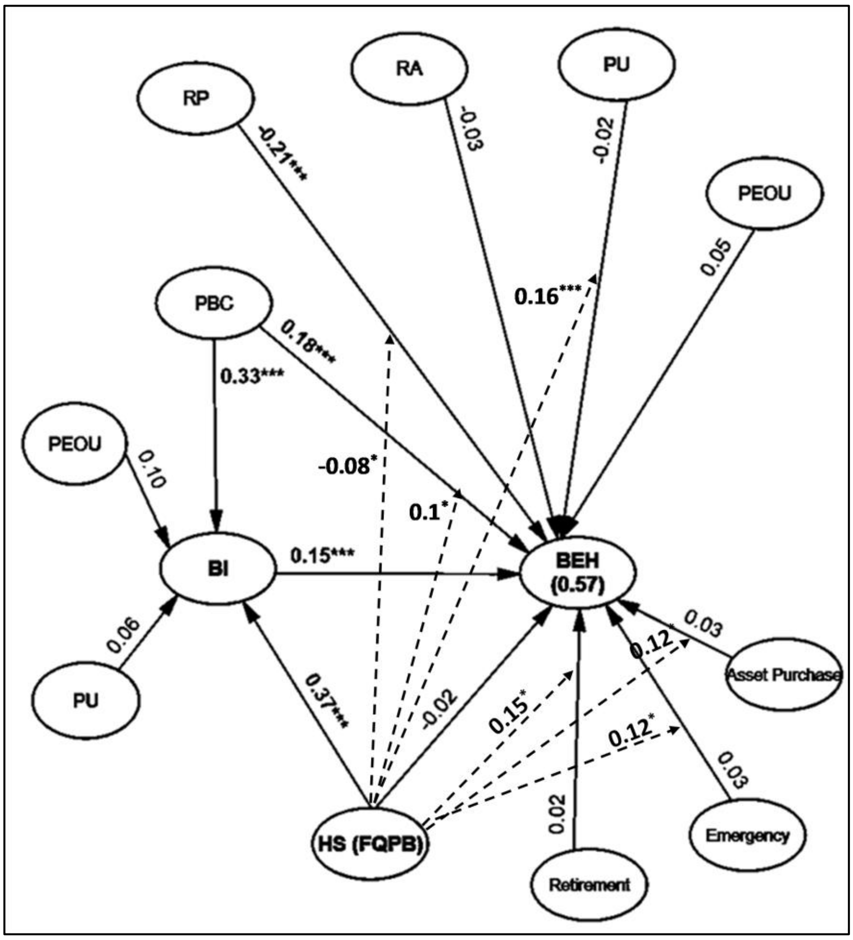

Figure 3 – Final model of investing behaviors (BEH) with R2 = 0.57 and standardized path coefficients along paths connecting BEH from BI, PBC, RA, RP, PU, PEOU, habit strength (FQPB) and three goals. Dashed lines represent moderating effects of habits with only significant interactions shown. Significance *** is p-value < 0.001, * * < 0.01 and * < 0.05.

Discriminant validity was assessed using two methods suggested by scholars (Chin. 2010; Hair et al., 2019). First Cross-loadings of all items on the constructs had to be less than loadings on the construct. The loadings are intended to measured. Second square of the inter-construct standardized correlations (shared variance) had to be less than AVE for the construct. Table 4 values indicated that both were adhered to conditions were met establishing discriminant validity (Hair et al., 2019). The authors in figure 3 represented the final structural model showing how investing behaviors (BEH) related to the various predictors through path coefficients in terms of direct and interaction effects (dashed arrows).

The analysis was done using a hierarchical regression model starting with a first with a baseline model; second adding constructs of risk and technology acceptance. Then the authors adding habit strength and interactions; and finally adding goals and interactions. Age, income and education were included as control variables across all models.

The authors in 5 represented all models and results.

Table 5 –Standardized path coefficients from PLS regression analysis of the conceptual model (Figure 1) with investing behaviors (BEH) as dependent variable. Model 1 is baseline TPB model; Model 2 adds risk and technology factors; Model 3 adds habit and interactions; Model 4 adds goals and its interaction.

Dependent variable - BEH	**1 (TPB)**	**2 (+ Risk, Tech)**	**3 (+ Habit)**	**4 (+ Goals)**
Age (0 - <= 40)	-	-0.02	-0.04	-0.06
	(0.03)	(-0.57)	(-1.26)	(-1.65)
Income (0 - <= 9 lakhs)	-0.11*	-0.05	-0.06	-0.06
	(-2.52)	(-1.29)	(-1.41)	(-1.29)
Education (0 - <= Graduate)	0.07	0.09*	0.10*	0.08*
	(1.71)	(2.11)	(2.57)	(2.15)
Perceived behavioral control (PBC)	0.36***	0.20***	0.18***	0.18***
	(7.00)	(3.66)	(3.41)	(3.43)
Risk Aversion (RA)		-0.02	-0.04	-0.03
		(-0.64)	(-1.23)	(-0.75)
Risk Perception (RP)		-.034***	-0.23***	-0.21***
		(-8.03)	(5.61)	(-4.90)
Perceived Usefulness (PU)		-0.07	-0.03	-0.02
		(-1.28)	(-0.63)	(-0.41)
Perceived Ease of Use (PEOU)		0.10	0.07	0.05
		(1.87)	(1.27)	(0.98)
Habit Strength (FQPB)			0.32***	-0.02
			(6.59)	(-0.12)
Behavioral intentions (BI)	0.32***	0.27***	0.17***	0.15***
	(6.23)	(5.60)	(3.34)	(2.93)
BI × FQPB			-0.03	-0.04
			(-0.68)	(-0.74)
PBC × FQPB			0.10*	0.10*
			(2.28)	(2.12)
RA × FQPB			0.05	0.04

Dependent variable - BEH	**1 (TPB)**	**2 (+ Risk, Tech)**	**3 (+ Habit)**	**4 (+ Goals)**
			(1.42)	(1.28)
RP × FQPB			-0.06	-0.08^{*}
			(-1.79)	(-2.25)
PU × FQPB			0.17^{***}	0.16^{***}
			(4.29)	(3.93)
PEOU × FQPB			-0.04	-0.04
			(-1.12)	(-1.10)
Retirement planning × FQPB				0.15^{*}
				(2.61)
Asset Purchase × FQPB				0.12^{*}
				(2.39)
Emergency fund × FQPB				0.12^{*}
				(2.36)
Adjusted R^2	**36%**	**45%**	**54%**	**57%**

Significance is *** - < 0.001, ** - < 0.01, * - < 0.05, t-statistic values in brackets.

Source: Authors' own analysis & conceptualisation

The baseline model explained 36% of variance in behaviors (BEH) with behavioral intentions (BI, 0.32, $p < 0.001$) and behavioral control (PBC, 0.36, $p < 0.001$) as significant positive predictors. This conformed to a standard TPB model. In model 2 the addition of risk perception (RP, -0.34, $p < 0.001$) as a predictor improves explanatory power to 45%. While intentions and behavioral control remain significantly positive, risk aversion (RA) and technology related variables (PU, PEOU) are not significant. Model 3 with inclusion of habit strength and interactions further improves explained variance to 54% with habit strength. This was significantly positive predictor of behaviors (0.32, $p < 0.001$). Only interactions of habit strength with PBC (0.10, $p < 0.05$) and PU (0.17, $p < 0.001$) were significant. In model 4, the addition of financial goals improved R^2 value to 57% with habits and goals having no direct influence on behaviors, the influence was only based upon interactions. In addition, RP had both a direct influence (-0.21, $p < 0.001$) and was moderated by habits (-0.08, $p < 0.05$). The interaction of habits with three of the goals were significant such as retirement planning (0.15, $p < 0.05$), asset purchases (0.12, $p < 0.05$) and emergency fund planning (0.12, $p < 0.05$).

To evaluate the contribution of various constructs in explaining behaviors the authors assessed the effect sizes (Chin. 2010; Ringle et al., 2017) with values being 0.02, 0.15 and 0.35 as small, medium and large effect sizes according to Cohen, (1988). The addition of habit strength in model 3 reduced the effect size of behavioral intentions (BI) from 0.07 to 0.02 while effect size of habit strength was 0.20.

In summary, the dual-process model 4 with inclusion of habits and goals and interactions improved the explanation of behavioral variance over the basic TPB model by 21% (36% to 57%). The results indicated that habits dominated over intentions in driving behaviors and reduced the impact of intentions by almost one-third.

5. Discussions

The authors in this section presented the discussion. **Error! Reference source not found.** demonstrated that as per dual-process theory with both intentions (BI) and habits (FQPB) co-existed. Furthermore, it was significantly driving investor behaviors. Behavioral intentions had a direct impact (0.15, $p < 0.001$) on investing behaviors whereas the influence of habits was only indirect through intentions ($0.37 \times 0.15 = 0.06$, $p < 0.001$) and through interactions with other predictors. These were PBC, RP and retirement, asset purchases and emergency fund planning goals. The inclusion of habits in the model attenuated the influence of intentions. A meta review of 45 papers covering 52 different studies across dietary consumption, physical activity, travel mode choice by (Gardner, Lally and Rebar, 2020) found similar evidence of intentions and habits co-predicting behaviors and also reported the attenuation of intention by habits. Limayem, Hirt and Christy Cheung, (2007); Guinea and Markus, (2020) in a their studies of IT\IS and worldwide web usage found that the level of habits changed the relative influence of intentions and set a boundary condition for its predictive powers. Brown, Hagger and Hamilton, (2020) tested three different behavioral actions and found that in two cases habits and intentions drove behaviors jointly while in one case intentions, were attenuated by habits to a point that it had no influence. Loibl, Kraybill and DeMay, (2011) demonstrated a 2.6% improvement in explaining savings deposit amounts over and above a TPB model by the inclusion of the factor of saving habits. This study reported no interaction effects between intentions and habits. Though the sign (-0.04) was negative indicating higher habit strength, it could reduce the impact of intentions. Support for this study results came from a study on saving money behaviors by Allom et al., (2018) using a similar dual-process theory model that demonstrated no habit-intention interaction. Of 52 studies reviewed by Gardner, Lally and Rebar, (2020), 31% indicated no interaction, 21% others had inconsistent results and only 48% supported interaction. The authors thus explain the study result by arguing that higher habit strength reduced risk perception and increased the perception of behavioral control and both had effect sizes (0.07 and 0.05 respectively) greater than that of intentions (0.02). This compensate for weaker intentions to drive higher behaviors without moderating intentions. This study findings supported hypothesis H1A that being inclusion of habits reduced the influence of intentions. However, there was no support for H1B as there was no moderating relationship.

The authors would like to report that based upon **Error! Reference source not found.** that perceived behavioral control (PBC) had a significant direct impact (0.18, $p < 0.001$) on behaviors and has an effect size of 0.05. This finding is supported by other research work (Pavlou and Fygenson, 2006). They had demonstrated PBC was a superior predictor of behaviors than intentions. **Error! Reference source not found.** indicated that habits significantly moderated PBC (0.10, $p < 0.05$) with higher habit strength leading to greater behavioral control. Earlier studies reported that once the initial formative stage of a behavior attained a stable maintenance phase then voluntary action shifted to habits and PBC become a dominant predictor of behaviors (Ouellette and Wood, 1998; Armitage, 2005). Habits due to the benefits of self-regulation and unconscious execution reduce mental strain and stress associated with risky decision making (Wood, Mazar and Neal, 2022). This enhanced the feelings of self-efficacy and perceptions of control (Wood, Quinn and Kashy, 2002; Loibl, Kraybill and DeMay, 2011; Wood and Rünger, 2016). This supported the hypothesis H2.

Risk perception (RP) had the largest contribution in explaining behavioral variance next to habits with an effect size of 0.07. Decreasing risk perception significantly increases investing behaviors across all the study models. The effect of lower risk perception leading to riskier behavior was confirmed in extant risk literature (Sachse, Jungermann and Belting, 2012). **Error! Reference source not found.** indicated that habit strength significantly moderated risk perception (-0.08, $p < 0.05$) with higher habit strength weakening the impact of risk perception (refer to **Error! Reference source not found.**). In a study of social e-commerce usage Farivar, Turel and Yuan, (2017) found that the more habituated social commerce usage become, the less attention users payed to risk and trust considerations in purchasing decisions. Related finding comes from the study of Vishwanath, (2015) who found that habitual social media users based on frequent usage, had a large social network.

Risk aversion (RA) had no significant direct or indirect impact (refer to **Error! Reference source not found.**) on behaviors. It was also not moderated by habits. This presented a departure from studies on savings behavior that found low risk tolerance (high risk aversion) had significant negative effect on savings (Fisher and

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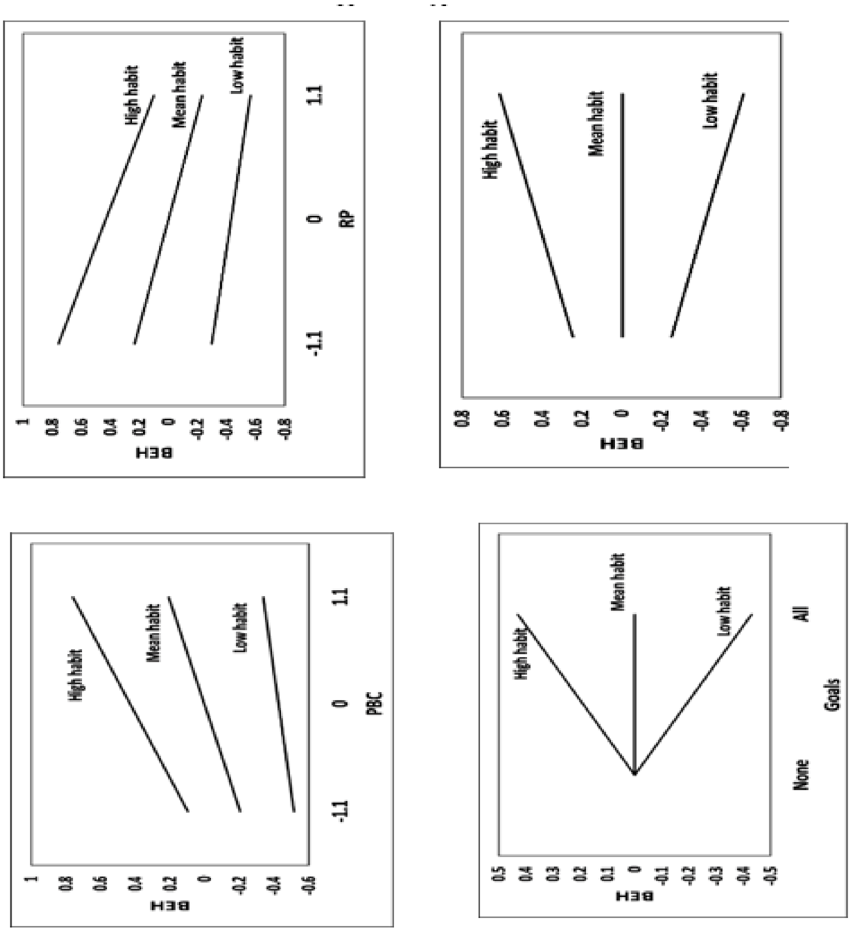
Montalto, 2010; Fisher and Anong, 2012). Risk tolerance was a personality related trait and was stable across domains and situations whereas risk perception is domain and situation specific (Weber, Blais and Betz, 2002; Nosi'c and Weber, 2010; Roszkowski and Davey, 2010; Hoffmann and Post, 2017). Savings has been associated with risk free assets in low volatility environments with little possibility of capital loss. Hence it represented a stable environment where risk tolerance was dominant; Investing represented more volatile assets\market conditions. Therefore, the investors perception of risk did matters. The authors in this research also explored the possibility that risk aversion could be mediated by risk perception as suggested by Sitkin and Weingart, (1995). Regressing RP on RA revealed that RA explained less than 2% of the variance in RP after controlling for demographics and socio-economic factors. The author concluded that RA did not influence habitual investing behaviors. Together with the conclusion on RP the authors found support for hypotheses H3, H4.



Results from **Error! Reference source not found.** indicated the positive moderating effect of habits on the goals-investing behavior relationship. Presence of all three goals. The effect was also similar for these goals. Like towards retirement planning, asset purchases, and emergency fund planning. This resulted in higher investing behaviors under higher habit strength with low habit strength decreasing investing behaviors. The effect size of this interaction was low (0.02) in all cases. Goals had no direct impact on behaviors. This finding supported hypothesis H5 that proposed habits positively moderated goals, albeit with a small effect size. Scholars had indicated that habit and goals were independent and once habits was formed it was past performance context rather than goals that activated behaviors (Wood and Neal, 2007; Neal et al., 2012). Even under depleted will power and motivation, individuals continued to perform behaviors when these were driven by habits than by intentions and goals (Wood, Mazar and Neal, 2022). In line with these conclusions this research study indicated that habits did drive behaviors independent of goals. It influenced on goals was fully moderated by habits. Habits interface with goals like retirement planning, emergency fund planning that necessitated congruence with habit.

(Neal, Wood and Drolet, 2013). Scholars had reported that individuals with retirement planning goals passively invest into retirement accounts with a frequency being determined by their weekly\monthly receipt of salaries\bonus(Del Guercio and Tkac, 2002; Benartzi and Thaler, 2007; Cashman et al., 2014). For habitual investors the contextual cue of a weekly\monthly cash inflow could activate thoughts of a retirement goal and motivate them to invest more.

5.2. Role of Technology

The authors controled for the role of technology using the constructs of Perceived usefulness (PU) and perceived ease of use (PEOU). As presented in **Error! Reference source not found.** and **Error! Reference source not found.** PU and PEOU had no significant direct impact on intentions or behaviors. In **Error! Reference source not found.** PU was positively moderated by habits (0.16, $p < 0.001$) under strong habit strength, whereas under low habit strength it decreased likelihood of investing. This implied that habitual investors did consider online investing to be useful (PU1), effective (PU2) and productive (PU3). Regressing PU on habits (FQPB) and controlling for demographics the study result indicated that there was 17.6% of variance in habits with a small effect size of 0.02 (compared to a null model). The authors concluded that technology did explain habitual actions partially but 83% of variance in habits came from other non-technology factors.

5.3. Comparison between passive versus active investors

An alternative causal explanation for linking past behaviors to likelihood of future investing could be that investors behaved like habitual savers. Investors treated mutual funds as risk-free assets. Such investors would then not invest in risky assets such as equity and would restrict themselves to debt. To check this, the authors divided respondents into three groups that varied by habit strength (low, medium, high). The authors compared the investors likelihood of investing in assets varying in risk from equity (high risk), mutual funds (medium risk) to debt (low risk). The high habit strength (HS) group was defined as those in the top 20th percentile of FQPB values, the low HS group were from the bottom 20th percentile. This distribution has been depicted Figure 2.

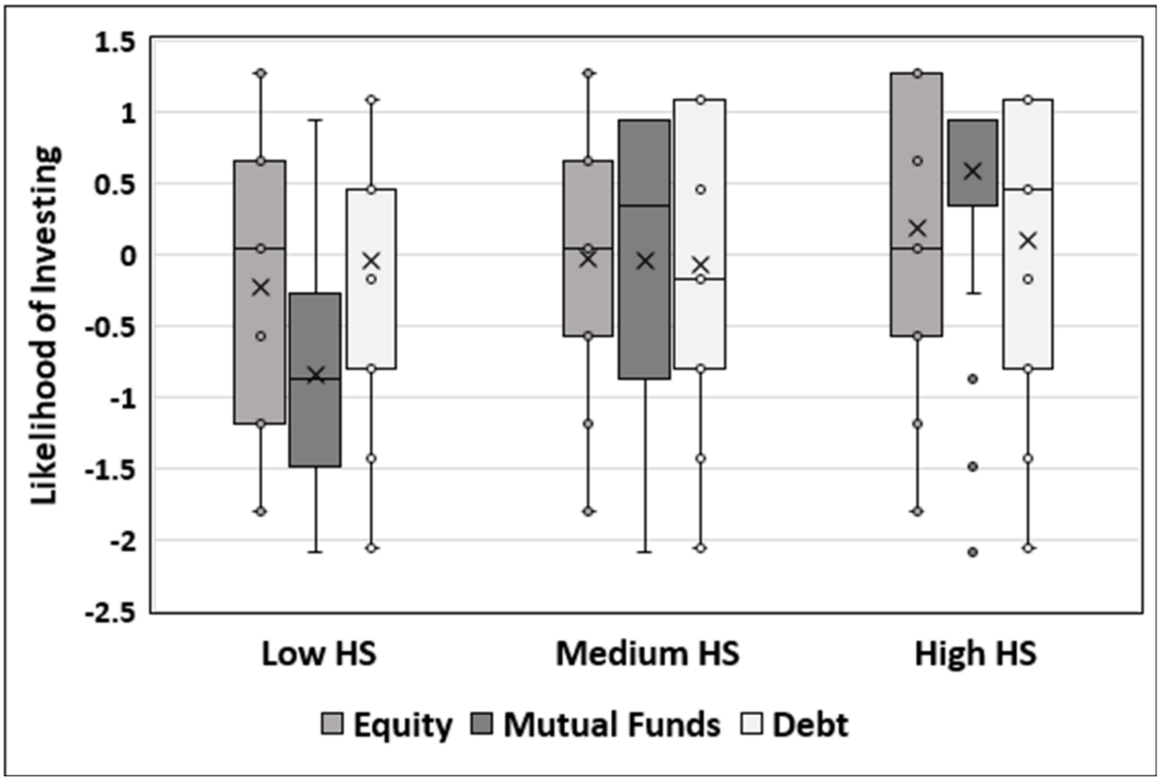


Figure 2 – Comparison of likelihood of investing in equity (high risk), mutual funds (low to high risk) and debt (low risk) amongst respondents in terms of their past behaviors\habit strength (HS). High HS represents

the top 20th percentile by frequency of past behavior and Low HS represents the bottom 20th percentile. × marks the mean values.

A multi-group ANOVA revealed that while mean likelihood of mutual fund investing significantly increased from -0.85 to 0.58[1] (p-value = 0) as habit strength increases. The likelihood of equity investing also increased from -0.21 to 0.18 (p-value=0.006). Debt investing however reported no significant difference between habit strength (p-value=0.253). This implied that higher habit strength savers were more likely to invest in riskier assets such as equity (apart from mutual funds) and were therefore not passive but active investors.

6. Conclusion

This study results indicated that habits could prove to be an effective behavioral intervention tool for marketers. This would be to encourage risk averse and passive savers to become investors. They could then create wealth. Traditional methods of manipulating intentions to drive investing behaviors was limited by the "intention-behavior" gap. Given this gap an investor due to the time and effort required, lack of knowledge and skills, perception of risk did not convert the intentions to actions. This could be overcome by increasing habit strength that could dominate and compensate for weak intentions. Risk perception and behavioral control were dominant predictors of investing behaviors and both can be significantly manipulated by increasing habit strength. Habits were often impervious to individual personality traits such as risk aversion, demographic and socio-economic factors. As Table 5 only education was significant, it could be applied to a wider range of investor personalities. When habit strength increased, having goals such as investing for retirement, or creating an emergency fund would increase investing behaviors.

The authors in this empirical investigation demonstrated how a dual-process model including reflective (intentions) and impulsive (habits) processes along with constructs of risk, control and goals improved explanation of investing behaviors compared to a plain-social-cognitive model. Some limitations of this study included the use of a single dimensional measure of habit strength when more complex 12-factor measures such as the self-reported habit index (SRHI) were available (Verplanken and Orbell, 2003). One could note that not all financial goals were moderated by habits and their effect sizes were small. This scholars in future research could drill into a comparison of goal attributes, definitions and explore the effect on behaviors.

Current academic research and market practices focused on understanding and manipulating socio-cognitive factors. This would be towards influencing investor behaviors by giving short to the power of good habits. Relying solely on a risk\return utility maximization route that places great cognitive demands and created psychological stress and strain could turn away potential investors. Habitual investing in contrast with its low effort, self-regulated approach could work in tandem with intentions and attract otherwise reluctant individuals to capital markets. Forming good investing habits should therefore be given greater consideration by investors, financial educators, advisors, fund houses and fund distributors.

Compliance with Ethical Standards

Conflict of Interest: The authors have no competing interests to declare that are relevant to the content of this article.

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[1] These are all standardized z-scores, hence have negative values (below mean)

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