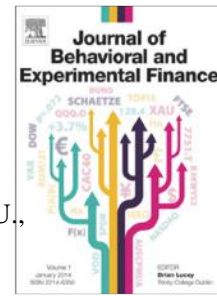# Accepted Manuscript

A serial mediation model of financial knowledge on the intention to invest: The central role of risk perception and attitude

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A Serial Mediation Model of Financial Knowledge on the Intention to Invest: The Central Role of Risk Perception and Attitude

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A Serial Mediation Model of Financial Knowledge and Financial Behavioural Intention to Invest: The Central Role of Risk Perception and Attitude

ABSTRACT

Addressing the complexity of financial decision-making process, this study assessed the effects of financial knowledge towards the financial behavioural intention to invest with both risk perception and attitude, in serial, as mediators among young Malaysians. This study operationalized financial knowledge as actual financial knowledge (objective knowledge) and self-rated financial knowledge (subjective knowledge). Using purposive sampling strategy, this study sampled 492 respondents who were of below the prime-savings years for the questionnaire survey. The resultant outcomes of this study revealed significant mediating effects of risk perception and attitude in the sequential positive relationship between financial knowledge and financial behavioural intention to invest. Apart from the significance of financial knowledge in the financial decision-making process, this study also unravelled the complexity of the relationship of knowledge and behaviour with the combination of risk perception and attitude.

Keywords: Attitude, Behavioural Finance, Investment Behaviour, Financial Knowledge, Risk Perception, Serial Mediation

1. Introduction

Essentially, early financial investments provide groundwork for future financial security in line with the concept of personal financial and retirement planning. Despite recording high gross domestic savings of approximately 35% (World Bank, 2014), majority of young Malaysians, unlike the older generations, do not possess solid investments or savings, which reflect the pressing state of their financial behaviour and financial literacy. Khazanah Research Institute (KRI), which is closely linked to the state investment arm, reported that young Malaysians spend beyond their means (The Star, 2016). Besides that, their poor financial literacy, which contributes to critical financial mismanagement (Jariah et al., 2004; Duasa and Yusof, 2013; The Star, 2016), is extensively documented (Osman et al., 2008; Sabri et al., 2010; Lim et al., 2014; Bernama, 2015). However, the financial decision-making process itself is rather complex and risky given the intangibility of financial products and the unquantifiability of the investment quality and outcomes at the point of investing.

Accordingly, the positive relationship between financial knowledge and financial behaviour is explicitly assumed. Given the diverse selection of financial products, those with advanced financial knowledge may develop higher propensity to secure better financial investments. Therefore, this study assessed the effects of financial knowledge towards the financial behavioural intention to invest among young Malaysians. Addressing the complexity of financial decision-making process, this study combined the risk perception and attitude to explore the relationship between financial knowledge and financial behavioural intention to invest, which comprehensively expanded the scope of financial behaviour research. Specifically, the contributions of this study were threefold in terms of (1) the effects of objective knowledge and subjective financial knowledge towards the financial behavioural intention to invest, (2) the mediating role of risk perception and attitude in a serial mediation model of financial knowledge and financial behavioural intention to invest, and (3) the financial behavioural intention among those who are of below the prime-savings years.

2. Literature Review

Financial knowledge broadly encompasses a representative set of financial-related information that is systematically discovered and gathered (Alba and Hutchinson, 1987). Depending on the existing level of financial knowledge, one can decide on how to adequately make use of the knowledge in the decision-making process (Litterer, 1965). Thus, those with higher level of financial knowledge on the current financial market operations and products are postulated to demonstrate highly effective financial decision-making process and secure favourable financial investments (Liebermann and Flint-Goor, 1996).

There are substantial studies that explored the effects of financial knowledge towards financial behaviour. Overall, the relationship between financial knowledge and financial behaviour remains inconclusive as prior studies presented contradictory findings. In particular, Chen and Volpe (1998), Hilgert et al. (2003), Lusardi and Mitchell (2006; 2007), Robb and Sharpe (2009), and Robb (2011) demonstrated positive relationship between financial knowledge and financial behaviour, which implies that high level of financial knowledge contributes to positive financial behaviour. Meanwhile, Wang (2009) propounded objective knowledge and subjective knowledge in representation of financial knowledge—the former is captured based on the answers provided by the respondents with respect to the set questions, while the latter, as the term implies, is the subjective responses provided by the respondents—which revealed high correlation between financial knowledge and financial risk behaviour. On the other hand, Jones (2008) revealed insignificant relationship between financial knowledge and financial behaviour. Despite the possible positive relationship between financial knowledge and financial behavioural intention to invest, Borden et al. (2008) highlighted the implausibility of acquiring evidence on the translation of both knowledge and intention into the desired actual financial behaviour. Moreover, Mandell and Klein (2009) revealed that the participants of personal financial management course and those who did not attend the course demonstrated no significant differences in their financial knowledge and financial behaviour.

Meanwhile, the complex relationships of knowledge, attitude, and behaviour can be direct or indirect (Fabrigar et al., 2006). Referring to the notion propounded by Krosnick and Petty (1995), Fabrigar et al. (2006) reiterated knowledge as the underlying basis of attitude in influencing the corresponding values or engagements as well as the attitude itself. Thus, the operationalization of knowledge affects the relationships of knowledge, attitude, and behaviour. Accordingly, Jorgensen and Salva (2010) and Lim et al. (2014) demonstrated the implausibility of direct relationship, but the possibility of indirect relationship between financial knowledge and financial behaviour instead, with attitude as the mediator. After all, the financial knowledge positively influences financial attitude, which may contribute to the realization of positive financial behaviour. Besides that, Ki and Hon (2012) propounded how one's perception (which reflects personal points of view) influences the evaluation of the considered subject matter and eventually behavioural intention. Therefore, Ki and Hon (2012) considered that capturing the behavioural intention alone, instead of the actual behaviour, is adequate. Apart from that, Ulleberg and Rundmo (2003) also explored the driving behaviour among young drivers through risk perception, attitude, and behaviour.

With that, this study operationalized financial knowledge as objective knowledge and subjective knowledge, which were then combined with attitude to comprehensively grasp the effects of financial knowledge towards attitude and behavioural intention in the financial domain (Fabrigar et al., 2006). Barber and Odean (2001) raised the question of how one demonstrates the propensity of overestimating the level of knowledge, which was expected to be addressed based on the resultant outcomes of this study. Considering that subjective knowledge is associated to one's confidence level on the subject matter (Brucks, 1985), this study attempted to assess whether the concept of overconfidence in the behavioural finance theory accounts for the behavioural intention in risk-taking behaviour. After all, the financial decision-making process, which directly reflects how one deals with information in actual cases, is irrefutably complex and risky. Adding to that, the risk perception, attitude, and behavioural intention within the financial context tend to be associated to how one demonstrates the intention to invest. Thus, it is imperative to grasp the public perception as well as the attitude in unravelling the complexity of financial decision-making process.

3. Method
This study employed non-probabilistic purposive sampling strategy to perform questionnaire survey among the respondents across different states in Malaysia, specifically Kelantan, Penang, Perak, Selangor, Sabah, Sarawak, and the Federal Territory of Kuala Lumpur. Focusing on young working adults, this study successfully sampled 492 respondents who were of age 19 to 39 years. This particular age group of young generation (Davis and Li, 2003) is typically associated to prime-savings years (Poterba, 2001). It was assumed that these respondents were not actively seeking for financial

products and investments or savings (Higgins, 1998). Prior to the actual data collection, this study pre-tested and pilot-tested the developed instrument among 100 respondents.

Referring to Lam and Hsu (2006), this study adapted six items to assess the financial behavioural intention to invest (BI) based on a 10-point Likert scale with endpoints of highly disagree (1) and strongly agree (10). Specifically, these items measured the willingness to invest among the respondents. Thus, higher mean scores in this context indicated higher willingness or behavioural intention to invest. The items obtained Cronbach's alpha of 0.95, which demonstrated good internal consistency.

Following that, this study adapted 10 items from Van Rooij et al. (2011) to assess the objective knowledge (OK), which comprised of five questions on basic financial knowledge (such as compound interest, inflation, inflation/money illusion, numeracy, and time value of money) and five questions on advanced financial knowledge (such as functioning of share markets and mutual funds, riskiness of shares and mutual funds, risk concerning investment horizon, and risk diversification). For this, every right answer represents one point—thus, the total score for 10 questions ranged between 0 (all wrong answers) and 10 (all correct answers). As for the subjective knowledge (SK), this study incorporated six adapted items (Flynn and Goldsmith, 1999) into the instrument based on a six-point Likert scale with endpoints of highly disagree (1) and strongly agree (6). Overall, these six items demonstrated good internal consistency (Cronbach's alpha of 0.90). Similarly, higher mean scores in this context indicated higher level of self-rated financial knowledge.

Adding to that, this study considered risk perception (PER) towards financial investments as the first serial mediator. The respondents were required to rate four adapted items (Hoffman et al., 2013) based on a six-point Likert scale. Likewise, the adapted items reflected good internal consistency (Cronbach's alpha of 0.88). The subsequent serial mediator of this study was the attitude towards financial investment (ATT). Accordingly, this study adapted five items from Lee (2009) and Ramayah et al. (2009) to assess the respondents' overall evaluation on financial investments (Peter and Olson, 2010). These items obtained Cronbach's alpha of 0.82, which suggested good internal consistency.

Overall, the serial mediation model of this study incorporated two potential serial mediators in assessing the direct and indirect effects of objective knowledge and subjective knowledge (predictor variables) towards financial behavioural intention to invest (criterion variable). In particular, this study postulated that predictor variable (X) initiates the first serial mediator (M1) and subsequently the second serial mediator (M2) with the criterion variable (Y) as the final consequent. Figure 1 presents the corresponding path directions of X, Y, M1, and M2.
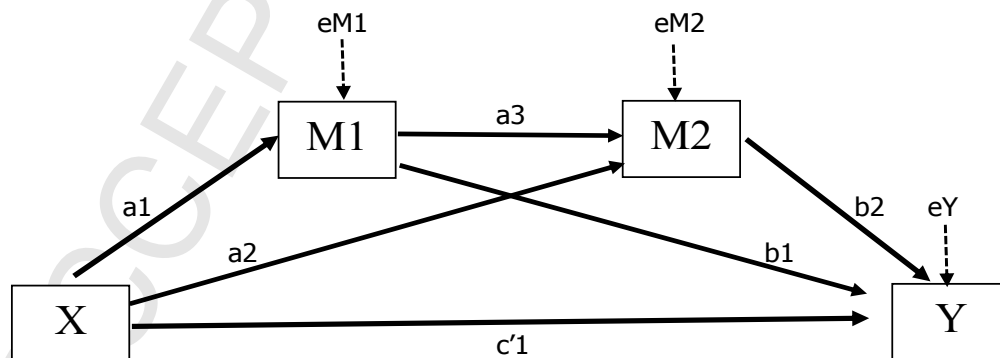

Figure 1: Statistical Diagram for Serial Mediation Model of Two Serial Mediators

This study denoted the direct path of X affects Y as c'1. There were three indirect paths of X affects Y as (1) a1b1 (X → M1 → Y), (2) a2b2 (X → M2 → Y), and (3) a1a3b2 (X → M1 → M2 → Y), which contributed to the total indirect effects of X towards Y (a1b1 + a2b2 + a1a3b2). Thus, the combination of direct effect (c'1) and total indirect effects (a1b1 + a2b2 + a1a3b2) represents the total effects of X towards Y. Accordingly, the following three regression equations evaluate the direct and indirect effects of X towards Y (Hayes, 2012; 2013):

M1	= iM1 + a1X + eM1	(Equation 1)
M2	= iM2 + a2X + a3M1 + eM2	(Equation 2)
Y	= iY + c'1X + b1M1 + b2M2 + eY	(Equation 3)

Where:	iM1, iM2, iY	: Intercepts
	eM1, eM2, eY	: Errors in estimation
	a1, a2, a3, b1, b2, c'1	: Regression coefficients

4. Results

The mean age of respondents in this study recorded 28.71 years (σ = 6.10). Meanwhile, the average monthly income of respondents was RM 2,909 (σ = RM 1,831). Besides that, the respondents were mostly female (63.7%) and of Malay ethnicity (32.4%). The respondents from the indigenous groups of Sabah and Sarawak constituted 31.8%, which was followed by Chinese (27.1%) and Indian (5.9%) respondents. Majority (51.6%) were of employees in the private sector. The remaining respondents were either employees in the public sector (35.6%) or self-employed (12.7%). Prior to the primary analysis, this study performed preliminary analysis to assess the outliers, monotone, common method variance, normality, and the accuracy of data entry.

As previously indicated, this study incorporated OK and SK as predictor variables of financial knowledge. Thus, this study performed independent serial mediation analysis for both predictor variables. The PROCESS macro (Hayes, 2012, 2013) was used to estimate the mediating effects of both direct and indirect effects based on 10,000 bootstrapping samples at 95% biased-corrected confidence intervals. The following three hypotheses were simultaneously tested: (1) H1: PER mediates the relationship between OK and BI; (2) H2: ATT mediates the relationship between OK and BI; (3) H3: PER and ATT, in this sequence, mediate the relationship between OK and BI.

Table 1 presents the obtained results with OK as the predictor variable in the three model equations, while Figure 2 illustrates the corresponding estimated model coefficients. On the overall, OK contributed statistically significantly positive effects towards BI (c1 = 0.1516, t = 3.5444, p = 0.0004) at 0.01 level. However, the direct positive effect of OK towards BI was insignificant (c'1 = 0.0679, t = 1.9221, p = 0.0552). In other words, the direct effect of actual financial knowledge towards financial behavioural intention to invest was negligible despite its positive relationship.

The first indirect path of OK affects BI (OK → PER → BI), which was denoted as Ind1 (Table 1), exhibited statistically significant positive effects. Accordingly, the obtained values of R^2 and F(1, 490) for Equation 1 (PER = 2.8937 + 0.0530OK) were 0.0129 and 6.4137, respectively, at 0.001 level, which reaffirmed the mediating effects of PER in the relationship between OK and BI. The obtained results on the bootstrap lower limit confidence interval (BootLLCI = 0.0098) and bootstrap upper limit confidence interval (BootULCI = 0.0892) did not straddled between zero with indirect effects of 0.0461; thus, H1 was supported. In other words, those who possess higher level of actual financial knowledge (a1 = 0.0530) demonstrate higher financial behavioural intention to invest with more favourable risk perception (b1 = 0.8698).

Similarly, the second indirect path of OK affects BI (OK → ATT → BI), which was denoted as Ind3 (Table 1), also revealed statistically significant positive effects based on the obtained bootstrap lower limit confidence interval (BootLLCI = 0.064) and bootstrap upper limit confidence (BootULCI = 0.0417); thus, H2 was supported. As for Equation 2 (ATT = 0.8260 + 0.0499OK + 0.8025PER), the obtained value of R^2 computed 0.6992 whereas F(2, 489) recorded 568.2235 at 0.001

level, which further reaffirmed the mediating effects of ATT in the relationship between OK and BI. The indirect effects of this path recorded 0.0203. In other words, higher level of actual financial knowledge produces more favourable attitude towards financial investments (a2 = 0.0499), which can be translated into higher financial behavioural intention to invest (b2 = 0.4070).
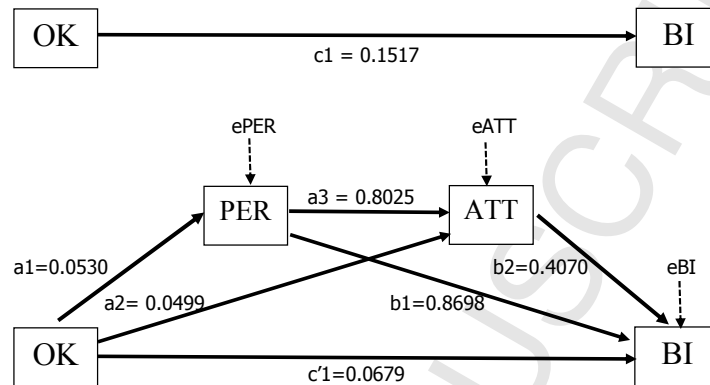

Figure 2: Serial Mediation Model with Objective Knowledge as Predictor Variable (OK → PER → ATT → BI)

The third indirect path of OK affects BI (OK → PER → ATT → BI), which was denoted as Ind2 (Table 1), also presented statistically significant positive effects. Moreover, the acquired bootstrap lower limit confidence interval (BootLLCI = 0.0031) and bootstrap upper limit confidence interval (BootULCI = 0.0421) were more than zero with indirect effects of 0.0173; thus, H3 was supported. The R^2 value of the final regression equation (BI = 0.6988 + 0.0679OK + 0.4070ATT) was 0.3704 with $F_{(3, 488)}$ of 95.6962 at 0.001 level, which reaffirmed the sequential mediating effects of both PER and ATT in the relationship between OK and BI. This suggests that higher level of actual financial knowledge produces more favourable risk perception (a1 = 0.0530), which leads to more favourable attitude towards financial investments (a3 = 0.8025) and eventually, higher financial behavioural intention to invest (b2 = 0.4070).

On the other hand, Table 2 presents the obtained results with SK as the predictor variable in the three model equations, while Figure 3 illustrates the corresponding estimated model coefficients. Similarly, three proposed hypotheses were tested: (1) H4: PER mediates the relationship between SK and BI; (2) H5: ATT mediates the relationship between SK and BI; (3) H6: PER and ATT mediate the relationship between SK and BI. On the overall, SK contributed statistically significantly positive effects towards BI (c1 = 1.2171, t = 18.1053, p = 0.0000). Furthermore, the direct positive effect of SK towards BI was also significant (c'1 = 0.7923, t = 8.4914, p = 0.0000), which reaffirmed the direct positive effect of self-rated financial knowledge towards financial behavioural intention to invest.

The first indirect path of SK affects BI (SK → PER → BI), which was denoted as Ind1 (Table 2), demonstrated statistically significant positive effects. The obtained bootstrap lower limit confidence interval (BootLLCI = 0.0670) and bootstrap upper limit confidence interval (BootULCI = 0.4472) exceeded zero with indirect effects of 0.2478; thus, H4 was supported. Accordingly, the obtained values of R^2 and $F_{(1, 490)}$ for Equation 1 (PER = 1.1000 + 0.6664SK) were 0.5083 and 506.4999, respectively, at 0.001 level, which reaffirmed the mediating effects of PER in the relationship between SK and BI. In other words, those who possess higher level of self-rated financial knowledge (a1 = 0.6664) demonstrate higher financial behavioural intention to invest with favourable risk perception (b1 = 0.3719).
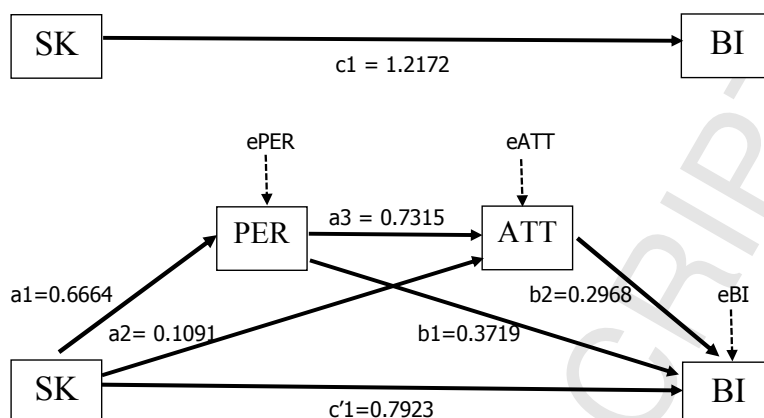
Figure 3: Serial Mediation Model with Subjective Knowledge as Predictor Variable (SK → PER → ATT → BI)

The second indirect path of SK affects BI (SK → ATT → BI), which was denoted as Ind3, also revealed statistically significant positive effects based on the obtained bootstrap lower limit confidence interval (BootLLCI = 0.0042) and bootstrap upper limit confidence (BootULCI = 0.0802); thus, H5 was supported. As for the current equation (ATT = 1.0099 + 0.1091SK + 0.7315PER), the obtained value of R^2 recorded 0.6944 with F(2, 489) of 555.5958 at 0.001 level. This further reaffirmed the mediating effects of ATT in the relationship between SK and BI. The indirect effects of this path recorded 0.0324. In other words, higher level of self-rated financial knowledge produces favourable attitude towards financial investments (a2 = 0.1091), which can be translated into higher financial behavioural intention to invest (b2 = 0.2968).

The third indirect path of SK affects BI (SK → PER → ATT → BI), which was denoted as Ind2, also demonstrated statistically significant positive effects. The acquired bootstrap lower limit confidence interval (BootLLCI = 0.0078) and bootstrap upper limit confidence interval (BootULCI = 0.2898) exceeded zero with indirect effects of 0.1446; thus, H6 was supported. The R^2 value of the third regression equation (BI = 0.5969 + 0.7923SK + 0.3719PER + 0.2968ATT) was 0.4473 with F(3, 488) of 131.6422 at 0.001 level, which further reaffirmed the mediating effects of both PER and ATT, in sequence, in the relationship between SK and BI. This implies that higher level of self-rated financial knowledge produces more favourable risk perception (a1 = 0.6664), which leads to more favourable attitude towards financial investments (a3 = 0.7315) and eventually, higher financial behavioural intention to invest (b2 = 0.2968).

5. Discussion and Conclusions
The resultant outcomes of this study using a serial mediation model demonstrated the significance of risk perception and attitude towards financial investments as mediators in the relationship between financial knowledge and financial behavioural intention to invest among these young adults. With respect to the proposed hypotheses, both risk perception and attitude towards financial investments proved to exhibit significant mediating effects for the translation process of financial knowledge into financial behavioural intention to invest in the financial decision-making process. After all, both risk perception and attitude towards financial investments play imperative cognitive attributes in the financial behavioural assumptions. Accordingly, Fabrigar et al. (2006) propounded the complexity of the relationship of knowledge, attitude, and behaviour, which was addressed in this study.

The obtained results proved the relationship of actual financial knowledge, risk perception, attitude, and behavioural intention in a sequential process with both risk perception and attitude towards financial investments as mediators. Thus, individuals who possess higher level of actual financial knowledge have the propensity to develop more favourable risk perception and attitude

towards financial investments, which subsequently translate into higher financial behavioural intention to invest. Apart from that, the mediating role of risk perception in the relationship between actual financial knowledge towards financial behavioural intention to invest was found to contribute larger effects, compared to the attitude towards financial investments. This suggests the significance of actual financial knowledge in the financial decision-making process provided the contents of the financial knowledge trigger positive change in the perception and attitude of the decision makers. The confirmation of objective knowledge → risk perception → attitude → behavioural intention causal sequence unravelled the complexity of perpetual process within the context of risky decision-making. The result added strength for the relevancy of behavioural finance theory that postulates decision-making involving risk is a multidimensional process.

However, the self-rated financial knowledge, compared to the actual financial knowledge, exhibited more robust effects (of both direct and indirect effects) towards financial behavioural intention to invest among these young adults. Based on the empirical evidence presented, the self-rated financial knowledge had higher explanatory power. The mediation models of both self-rated financial knowledge and financial behavioural intention to invest were statistically significant, which further reaffirmed the significance of both risk perception and attitude towards financial investments as mediators in the case of self-rated financial knowledge. This implies that those who exhibit higher confidence (higher self-rating) in the aspect of financial knowledge have the propensity of developing more favourable risk perception, which contributes to more favourable attitude towards financial investments and eventually, higher financial behavioural intention to invest.

In view of the above, the obtained results of this study highlighted a daunting concern, in which the self-rated financial knowledge was found to exhibit higher effects towards financial behavioural intention to invest via risk perception and attitude towards financial investments. In other words, the financial decision-making process among these young adults is less likely to rely on rationality with their scarce resources and actual knowledge on the subject matter. With respect to the assumptions of bounded rationality, most of these young adults may not be able to demonstrate rational decision-making process given their presumably high confidence level beyond their practical capability of managing financial risks that translates into more favourable risk perception and attitude towards financial investments. Thus, the financial decision-making process based on self-rated financial knowledge comes with higher risks and may result in undesirable results. Nevertheless, significant positive relationship between self-rated financial knowledge and financial behavioural intention to invest was found apparent among young Malaysians in this study. It is recommended for future research to explore whether self-rated financial knowledge or other plausible factors significantly contribute to the increasing financial mismanagement as well as the apprehension and unpreparedness in the personal financial and retirement planning among young Malaysians.

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Table 1: Summary of Mediation Model Results with Objective Knowledge as Predictor Variable (OK → PER → ATT → BI)

		Consequent								
Variable		**M1 (Risk Perception, PER)**				**M2 (Attitude, ATT)**			**Y (Behavioural Intention, BI)**	
		Coeff.	**SE**	**t-value**		**Coeff.**	**SE**	**t-value**		**Coeff.**	**SE**	**t-value**
X (Objective Knowledge, OK)	a1	0.0530	0.0209	2.5325*	a2	0.0499	0.0114	4.3585***	c'1	0.0679	0.0353	1.9221[+]
M1 (Risk Perception, PER)		-	-	-	a3	0.8025	0.0245	32.7162***	b1	0.8698	0.1328	6.5504***
M2 (Attitude, ATT)		-	-	-		-	-	-	b2	0.4070	0.1371	2.9693**
Y (Behavioural Intention, BI)	iM1	2.8937	0.1298	22.3011***	iM2	0.8260	0.1000	8.2586***	iY	0.6988	0.3236	2.1593*

Model Equation:

$$PER = 2.8937 + 0.0530OK$$
$$ATT = 0.8260 + 0.0499OK + 0.8025PER$$
$$BI = 0.6988 + 0.0679OK + 0.8698PER + 0.4070ATT$$

$R^2 = 0.0129$

$F_{(1, 490)} = 6.4137{***}$

$R^2 = 0.6992$

$F_{(2, 489)} = 568.2235{***}$

$R^2 = 0.3704$

$F_{(3, 488)} = 95.6962{***}$

Regression Coefficients, Standard Errors, t-values, and Model Summary for Serial Multiple Mediator Model (OK --> PER --> ATT --> BI)

Note: [+] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

	Effect	Boot SE	BootLLCI	BootULCI	t-value	p-value
Total Indirect:	0.0837	0.0276	0.0281	0.1367	-	-
Ind1: OK--> PER->BI	0.0461	0.0201	0.0098	0.0892	-	-
Ind2: OK--> PER--> ATT--> BI	0.0173	0.0097	0.0031	0.0421	-	-
Ind3 : OK--> ATT--> BI	0.0203	0.0087	0.0064	0.0417	-	-
Direct:	0.0679	0.0353	-0.0015	0.1374	1.9221	0.0552
Total Effect:	0.1516	0.0428	0.0676	0.2357	3.5444	0.0004
C1 = Ind1 - Ind2	0.0288	0.0178	0.0041	0.0783	-	-
C2 = Ind1 - Ind3	0.0258	0.0238	-0.0157	0.0778	-	-
C3 = Ind2 - Ind3	-0.003	0.0088	-0.0236	0.0121	-	-

Indirect, Direct, Total Effects, and Comparison of Indirect Effects of OK on BI

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Table 2: Summary of Mediation Model Results with Subjective Knowledge as Predictor Variable (SK → PER → ATT → BI)

Consequent

Variable		M1 (Risk Perception, PER)				M2 (Attitude, ATT)				Y (Behavioural Intention, BI)		
		Coeff.	SE	t-value		Coeff.	SE	t-value		Coeff.	SE	t-value
X (Subjective Knowledge, SK)	a1	0.6664	0.0296	22.5056***	a2	0.1091	0.0327	3.3321***	c'1	0.7923	0.0933	8.4914***
M1 (Risk Perception, PER)		-	-	-	a3	0.7315	0.0350	20.8824***	b1	0.3719	0.1358	2.7391**
M2 (Attitude, ATT)		-	-	-		-	-	-	b2	0.2968	0.1274	2.3286*
Y (Behavioural Intention, BI)	iM1	1.1000	0.0983	11.1931***	iM2	1.0099	0.0854	11.7215***	iY	0.5969	0.2723	2.1918*
Model Equation		PER = 1.1000 + 0.6664SK				ATT = 1.0099 + 0.1091SK + 0.7315PER				BI = 0.5969 + 0.7923SK + 0.3719PER + 0.2968ATT		
		R^2 = 0.5083				R^2 = 0.6944				R^2 = 0.4473		
		$F_{(1, 490)}$ = 506.4999***				$F_{(2, 489)}$ = 555.5958***				$F_{(3, 488)}$ = 131.6422***		

	Effect	Boot SE	BootLLCI	BootULCI	t-value	p-value
Total Indirect:	0.4248	0.0851	0.2640	0.5972	-	-
Ind1: SK-->PER-->BI	0.2478	0.0972	0.0670	0.4472	-	-
Ind2: SK-->PER--> ATT--> BI	0.1446	0.0709	0.0078	0.2898	-	-
Ind3 : SK--> ATT--> BI	0.0324	0.0186	0.0042	0.0802	-	-
Direct:	0.7923	0.0933	0.6090	0.9757	8.4914	0.0000
Total Effect:	1.2171	0.0672	1.0851	1.3493	18.1053	0.0000
C1 = Ind1 - Ind2	0.1032	0.1497	-0.1856	0.405	-	-
C2 = Ind1 - Ind3	0.2154	0.1066	0.0184	0.4339	-	-
C3 = Ind2 - Ind3	0.1123	0.0588	0.0085	0.2451	-	-

Indirect, Direct, Total Effects, and Comparison of Indirect Effects of SK on BI

Regression Coefficients, Standard Errors, t-values, and Model Summary for Serial Multiple Mediator Model (SK --> PER --> ATT --> BI)

Note: [+] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$