The Influence of Financial Risk Tolerance on Investment Decision-Making in a Financial Advice Context[1]

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Abstract

Client risk tolerance is universally assessed in the advisory process to help financial advisers provide suitable advice that assists clients in their investment decision-making. Although there is a well-established literature on risk tolerance and decision-making, little is known about financial risk tolerance and its influence on investor decisions in the financial advice context. Thus, the purpose of this study is to examine this influence with a focus on the key expected risk tolerance determinants: client financial literacy, trust in the financial advice service, and relationship length with the service. A new theoretical model and related hypotheses were proposed and tested using survey data from financial adviser clients in Australia (*N*=538). Results revealed a positive relationship between client risk tolerance and investment decision-making. Further, client trust and relationship length with the service were found to be positively associated with client financial literacy and risk tolerance. These findings, which provide a more comprehensive understanding of how risk tolerance and its antecedents influence client decisions, have the potential to improve advice in the financial services industry.

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Keywords: Risk tolerance, individual investment decisions, client-adviser relationship, financial advice context

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1. Introduction

According to a new industry research report: Global Wealth Management Market 2015-2019, the global wealth management market is expected to grow significantly at a compound annual growth rate of 10 percent by 2019. Indeed, provided the recovery of the world economy, a large portion of the baby boomer generation approaching their retirement, and an increasingly complex investment environment, financial advisers/planners are playing an important role in helping individuals around the world with their investment decisions. As a consequence, instances of poor advice are also likely to be increasingly costly. For instance, recent collapses of large Australian financial advisory firms such as Storm Financial and Opes Prime provide an early warning of the costs of such poor advice. The consequential criticism of the integrity of the financial advice industry, led the Australian government to enact the Future of Financial Advice (FOFA) reform regulations (effective from 1 July 2013). The reforms introduced a statutory requirement for financial advisers to act in the best interest of their clients. Clearly advisers cannot do this without understanding their client risk profiles, including their financial risk tolerance which refers to 'the maximum amount of uncertainty someone is willing to accept when making a financial decision' (Grable 2000, p. 625). As emphasized in Gibson, Michayluk, and Van de Venter (2013, p. 42): 'It is vital that financial advisors understand the effect that their services have on the financial risk tolerance of potential clients'.

Given the need of understanding client risk tolerance, however, a limitation of existing studies is that they do not examine how financial risk tolerance influences individual investment decision-making in a financial advice context, and fail to examine major influencing factors such as client financial literacy and the nature of the client-adviser relationship. Thus given this knowledge gap and the importance of the Australian financial advice context, the following research question was addressed in this study: *How does financial risk tolerance influence individual investment decision-making in a financial advice context?*

To address the question, a new theoretical framework was developed based on a behavioural perspective linking investor decision-making with risk tolerance and its potentially important determinants in the context. These variable are client financial literacy, trust in the financial advice service, and relationship length with the service. Eight hypotheses regarding the direct and indirect relationships among variables in the framework were proposed and tested using survey data from financial adviser clients in Australia (*N*=538). The results support the framework and all hypotheses.

2. The Risk Tolerance/Asset Allocation Decision Framework

Financial risk tolerance is conceptualised under two major different viewpoints in prior studies (Roszkowski & Davey 2010; Van de Venter, Michayluk, & Davey 2012). The first considers financial risk tolerance to be influenced by not only personal characteristics but also situational factors which induce risk tolerance to change overtime (Rui Yao 2003; Hoffmann, Post, & Pennings 2013). The other defines financial risk tolerance as a relatively stable trait that does not change significantly (Roszkowski & Davey 2010; Van de Venter et al. 2012; Gerrans, Faff, & Hartnett 2013). More importantly, based on their findings, Roszkowski and Davey (2010) and Van de Venter et al. (2012) combined two different viewpoints of financial risk tolerance

discussed above by suggesting that (1) financial risk tolerance is generally considered as a personal trait but it can change over time and (2) the change in financial risk tolerance is driven by external factors.

Generally, there are two main theoretical perspectives applied in researching financial risk tolerance and its relationship with investment decision-making. The traditional/normative financial models assuming rational behaviours specify how individuals ought to make their decisions, in which the expected utility theory (Von Neumann & Morgenstern 1947) is among the most popular models (Grable 2008). On the other hand, behavioural finance/descriptive theories challenge the rational behaviour assumption and assume that individuals are generally not rational and can involve 'behavioural biases or cognitive errors' in their actual decision-making (de Dreu & Bikker 2012, p. 2146). Behavioural finance has gained more attention with prominent theories such as Prospect theory (Kahneman & Tversky 1979, 1984) in which individuals are reported to view gains and losses differently and their risk tolerance is found to be associated with how the problem is framed (i.e., problem framing). This behavioural perspective is adopted in this study because a large portion of clients in the advice context are not sophisticated investors (i.e. not highly financially literate) and therefore prone to behavioural biases. Specifically, client-adviser relationship factors are argued to affect client risk tolerance and decision-making in a financial advice context. Using this perspective, the theoretical framework applied in this study is presented in Figure 1.1 and discussed below.
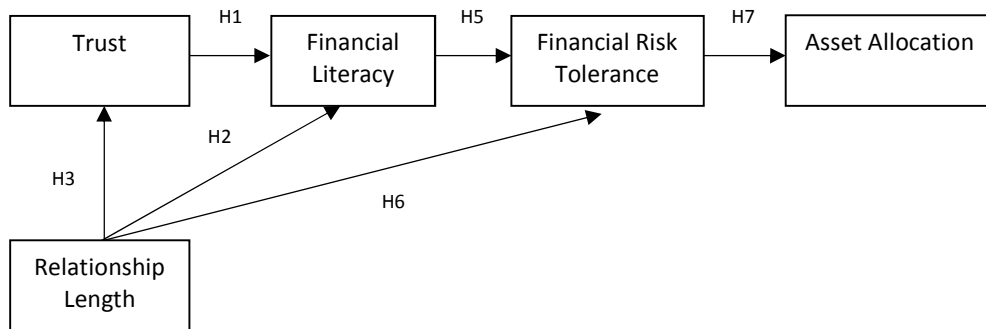
Figure 1.1 The influence of financial risk tolerance on asset allocation in a financial advice context.

Note. There are two hypotheses not specified in the framework: *H4* and *H8* regarding the indirect influence of *Relationship Length* on *Financial Literacy* through *Trust* (*H4*) and the indirect influence of *Financial Literacy* on *Asset Allocation* through *Risk Tolerance* (*H8*).

2.1 Determinants of Financial Risk Tolerance: Trust, Relationship Length, and Financial Literacy

The first part of the framework regarding the inter-relationships among relationship length, trust, and financial literacy is informed by Tsai and Ghoshal's (1998) and Levin and Cross's (2004) framework of the inter-relationships among relationship characteristics and resource exchange/knowledge transfer. Levin and Cross (2004) characterised the relationship between a knowledge seeker and a knowledge source by two main relationship attributes: a relational characteristic and a structural characteristic which originated from Nahapiet and Ghoshal's

(1998) classification of different dimensions of social capital. The relational characteristic refers to resources/values derived from the relationship (e.g., trust) while the structural characteristic is manifested by the degree of interaction between parties (e.g., relationship length) (Nahapiet & Ghoshal 1998; Tsai & Ghoshal 1998).

Consistent with Tsai and Ghoshal (1998) and Levin and Cross (2004), later literature also supports the influence of two important relationship characteristics (trust and relationship length) on knowledge transfer in different contexts (e.g., Mäkelä & Brewster 2009; Dale Stoel & Muhanna 2012; Mäkelä, Andersson, & Seppälä 2012). In other words, the characteristics of the relationship between parties can affect the knowledge transfer and receipt between them. This theoretical framework suggests the potential link between these characteristics and financial literacy in the advice context. In this context, clients usually start their relationship with the financial advice service to seek advice regarding their investments and/or financial future. Therefore, the relationship between a client and the financial advice service can be classified as between a knowledge seeker and a knowledge source.

Trust refers to 'the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party' (Mayer, Davis, & Schoorman 1995, p. 712). Different trustees frame different trust aspects. In the financial context, trust construct is usually conceptualised and operationalised as investors' trust in such parties/subjects as financial services providers (Diacon & Ennew 2001; Redhead 2011), financial advisers (Redhead 2011), financial advice of professionals (Georgarakos & Inderst 2011), the stock market (Redhead 2011; Sapienza & Zingales 2012), and large corporations, the Government, banks (Sapienza & Zingales 2012). Consistent with the research context, this study takes a broad view of client trust to include: (1) the financial adviser, (2) the financial advice provided, and (3) the adviser's institution. Because of this broad perspective, client trust in this paper is referred to as client trust in the 'financial advice service'. Relationship length is defined as the length of time that a client has used the financial advice service (adapted from Dyer & Chu 2000). Financial literacy is defined as 'the ability to make informed judgements and take effective decisions regarding the use and management of money' (Noctor, Stoney, & Stradling 1992, p. 4). Similar financial literacy definitions are used in prior research and relevant government reports (Gallery, Newton, & Palm 2011b). The following sections will provide the rationale for each of the hypothesised relationships in the framework.

Client trust and relationship length with the financial advice service and financial literacy (H1 and H2)

A review of literature revealed that trust has been consistently found to positively influence knowledge in different contexts (e.g., Tsai & Ghoshal 1998; Levin & Cross 2004; Usoro et al. 2007; Evans 2012; Dale Stoel & Muhanna 2012). For example, Levin and Cross (2004), in the knowledge-related context, found that trust was positively associated with the receipt of useful knowledge. Their findings suggest that 'trusting a knowledge source to be benevolent and competent should increase the chance that the knowledge receiver will learn from the interaction' (Levin & Cross 2004, p. 1479). Applying this concept in the financial advice

context, it is expected (*H1*) that client trust in the financial advice service will have a positive association with the client financial literacy:

> *H1: Client trust in the financial advice service is positively associated with client financial literacy.*

Similarly, there has been supporting evidence for the significant link between relationship length and knowledge, suggesting that people tend to acquire more knowledge from longer-term relationships (Mäkelä & Brewster 2009; Mäkelä et al. 2012). Also, a consistent positive relationship between a relevant structural characteristic: tie strength, and knowledge transfer has been found in prior research (Rowley, Behrens, & Krackhardt 2000; Reagans & McEvily 2003; van Wijk, Jansen, & Lyles 2008). Tie strength refers to 'the closeness and interaction frequency of a relationship between two parties' (Levin & Cross 2004, p. 1478; Hansen 1999). As relationship length also provides information about the extent of interaction between parties in a relationship (Dirks & Ferrin 2002), it can be inferred that the knowledge seeker is likely to receive more useful knowledge when the relationship between a knowledge seeker and a knowledge source has continued over a longer time period. Based on these arguments, it is hypothesised (*H2*) that the longer individuals use the financial advice service to help with their investments, the more useful financial knowledge they gain and the more financially literate they become from the interaction:

> *H2: Client relationship length with the financial advice service is positively associated with client financial literacy.*

Relationship length and trust (H3)

In other contexts, Dyer and Chu (2000) found a direct positive association between relationship length and automakers' trust in their suppliers in the US, Japanese, and Korean automaker industry. The positive relationship can be explained by a better understanding between parties in a longer-term relationship and the social penalty that the suppliers can receive in case they break the trust. More recently, Hammervoll and Toften (2013) found a supporting link (positive) between relationship length and inter-organisation trust in the seafood industry in Norway. Following Dyer and Chu (2000) and Hammervoll and Toften (2013), it is logical to expect (*H3*) that, when a client is involved with a financial advice service for a longer time period, the client is likely to better understand, accept, and ultimately trust the advice service:

> *H3: Client relationship length with the financial advice service is positively associated with client trust in the service.*

The intervening role of trust in relationship length and financial literacy (H4)

The theoretical model of the inter-relationships between relationship characteristics and knowledge transfer between a knowledge seeker and a knowledge source by Levin and Cross (2004) shows the mediating role of trust in the relationship between the strength of a relationship and knowledge. Levin and Cross (2004) also found supporting evidence for the mediation. In particular, strong ties between parties can help improve knowledge transfer between a

knowledge seeker and a knowledge source because strong ties lead to more trust. Similarly, as relationship length also characterises the level of interaction in a relationship (Dirks & Ferrin 2002), a longer relationship between a client and the financial advice service tends to be a more trusting one and therefore, effective in transferring more useful financial/investment knowledge to the client. Consequently, an indirect influence of relationship length on financial literacy through trust is hypothesised (*H4*).

> *H4: Client relationship length with the financial advice service affects client financial literacy indirectly through client trust in the service.*

Financial literacy and financial risk tolerance (H5)

'Financial knowledge has been found to be a reliable and statistically significant predictor of risk tolerance' (Grable & Joo 2000, p. 155). Notably, Grable and Joo (1999) stated that financial knowledge was among the most important factors predicting financial risk tolerance and incorporating the factor into the risk tolerance regression model made some demographic factors become less important. The general consensus suggests that more financially literate individuals tend to be more risk tolerant (i.e., positive relationship) (e.g., Grable & Joo 1999, 2000, 2004; Grable 2000; Frijns, Koellen, & Lehnert 2008; Grable & Roszkowski 2008; Gibson et al. 2013). Given the support from prior research, a similar relationship is expected in this study (*H5*).

> *H5: Client financial literacy is positively associated with client financial risk tolerance.*

Relationship length and financial risk tolerance (H6)

A person's risk tolerance has been found to be influenced (positive) by the length of time that the person has been involved with a hazard or risk (Baird 1986). Although Baird's (1986) findings are in a different context, i.e. environmental health risk, they suggest a positive association between client relationship length with the financial advice service and client risk tolerance in the financial advice context. In other words, longer-term clients tend to be more familiar with investment products and their underlying risks, leading to an expectation (*H6*) of more tolerance of those risks.

> *H6: Client relationship length with the financial advice service is positively associated with client financial risk tolerance*

Prior studies have also found evidence for the relationship between certain demographic factors and financial risk tolerance. Age, gender, marital status, household income, and education are among the most widely-studied demographic factors in risk tolerance research. However, there are mixed findings regarding the relationship between these demographic factors and financial risk tolerance (e.g., see Sung & Hanna 1996; Wang & Hanna 1997; Grable & Lytton 1998; Grable & Joo 1999, 2000, 2004; Grable 2000; Hallahan et al. 2003, 2004; Ardehali, Paradi, & Asmild 2005; Grable & Roszkowski 2008; Gibson et al. 2013). Because of this uncertain we have included demographic factors as control variables in our framework rather than as hypothesised predictors.

2.2 Risk Tolerance and Investment Decision-Making

Financial risk tolerance and investment decision-making (H7)

Risk tolerance has been found to significantly affect risky decision-making in different financial/investment contexts (e.g., Yuh & DeVaney 1996; Hariharan et al. 2000; Cardak & Wilkins 2009). Notably, it has been reported that risk tolerant individuals tend to invest less in risk free assets (Hariharan et al. 2000) or risk averse households are more likely to have a lower proportion of their assets allocated in risky assets (Cardak & Wilkins 2009). Consistent with these studies, it is logical to expect (*H7*) that risk tolerant clients tend to invest in riskier products compared to less risk tolerant ones.

> *H7: Client financial risk tolerance is positively associated with client asset allocation decisions*

The intervening role of risk tolerance in financial literacy and asset allocation (H8)

Financial literacy has been found to influence the asset allocation decisions of both individual and institutional investors. For example, de Dreu and Bikker (2012) examined 857 Dutch pension funds from 1999 to 2006 and found that less sophisticated (i.e. less knowledgeable) fund managers are likely to choose less risky investments for their asset allocations. The rationale behind the positive link is that less sophisticated pension fund managers are generally risk avoiders thus they tend to choose low risk investments (de Dreu & Bikker 2012). This suggests an indirect effect for financial literacy on the asset allocation decision through risk tolerance. Applying this argument to the financial advice context, financial literacy is hypothesised (*H8*) to influence asset allocation indirectly though risk tolerance.

> *H8: Client financial literacy affects client asset allocation decisions indirectly through client financial risk tolerance.*

3. Research Method

3.1 Sample and Sampling Procedure

Data used in this study were sourced from a related research project in which advisers from nine Financial Services Council member organisations in Australia were invited to participate in the project and asked to distribute the anonymous online questionnaire to their clients across the country (Newton et al. 2012). The completed usable questionnaires yielded a sample of 548 clients, with 52 percent male and 48 percent female with an average age of 57 years (*SD*=11). With regard to the current work status and income, around half of the sample (45%) worked full-time and approximately 55 percent of the sample had an annual income less than $100,000, 19 percent had income from $100,000 to $149,000, while 21 percent had an annual income of $150,000 or over. Overall, the sample is considered representative for the client population.

3.2 Measures

The questionnaire instrument was developed from the pilot study conducted in 2010 and then refined based on advisers' feedback and focus groups' data analysis (Newton et al. 2013). Client *Trust* in the financial advice service was assessed with seven items. Sample questions included: 'The advice I received clearly explains how the recommended strategies and products help me to achieve my needs and goals', 'I have faith in my financial adviser to provide me with the best advice for my financial situation'. All items were measured using a 5-point Likert scaling from 'strongly disagree' (coded as 1) to 'strongly agree' (coded as 5). Three items were used to capture self-assessed *Financial Literacy* and coded from low self-rated financial literacy to high self-rated literacy. Sample items included: 'I am confident about my ability to invest' (from 'strongly disagree' [coded as 1] to 'strongly agree' [coded as 7]). *Financial Risk Tolerance* was assessed with four items which sought answers about the client's willingness to take risk in different scenarios. Items were coded from low risk tolerance to high risk tolerance. Examples included: 'What is your willingness to risk shorter term losses for the prospect of higher longer term returns?' (1) Low, (2) Moderate, (3) High, (0) Not sure. Following prior studies which have operationalised *Relationship Length* as a single item measuring the length of time in terms of years/months (Dyer and Chu 2000; Mäkelä and Brewster 2009), *Relationship Length* was measured with a single item: 'How long have you been using the services of a financial planner/adviser?[5]' The response was coded 1 for 'Less than 12 months', 2 for '1 – 2 years', 3 for '2 – 5 years', 4 for '5 - 10 years' and 5 for 'More than 10 years'. Finally, *Asset Allocation* was measured as a percentage of money out of $100,000 that a participant would allocate to growth assets including units in a managed fund which buys shares, units in a managed fund which buys property, Australian shares, and International shares.

4. Results

4.1 Preliminary Data Analysis

Data were checked for missing data, outliers, sample size adequacy and compliance with the applicable statistical assumptions for the Maximum likelihood estimation method (Hair et al. 2010). Ten outliers were deleted resulting in a final sample of 538 client responses. Inspection of all skewness and kurtosis statistics showed that all statistics were within acceptable levels (i.e., values within ±2), indicating a relatively normal distributions (Lomax & Hahs-Vaughn 2013).

Mean, standard deviation, Pearson's correlation coefficients, average variance extracted (AVE), and Cronbach's alpha values of the focal and control variables are provided in Table 1.1. Overall, all five focal variables were significantly correlated with each other with the correlation coefficients ranged from $r=.10$, $p<.05$ to $r=.40$, $p<.01$. Dependent variable *Growth Asset Allocation* measuring client asset allocation to growth assets was significantly correlated with all other focal constructs, with the correlations ranging from $r=.10$, $p <.05$ to $r=.40$, $p<.01$. Among demographic variables, *Income, Marital Status*, *Education*, and *Gender* were significantly correlated with *Risk Tolerance* (coefficients ranged from $r=.09$, $p<.05$ to $r=.21$, $p<.01$). However, there was no significant correlation between *Age* and *Risk Tolerance*. Some prior

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[5] As it was assumed that clients do not change their adviser often, and following prior research, length of service provision is used as a proxy for relationship length.

studies also failed to find any significant link between *Age* and *Risk Tolerance* (e.g., Sung & Hanna 1996; Grable & Joo 1999, 2000).

To examine if common method variance (CMV) was a threat in this study, Harman's single-factor test was used (Podsakoff et al. 2003). Inspection of the unrotated factor solution showed that the first factor only accounted for 30 percent of the total variance, thus CMV was not considered a concern in this study. Further, the results from the additional latent CMV factor confirmed that CMV was not likely to be a concern with only approximately 4 percent of shared variance accounted by the latent factor.

4.2 Overview of the Analysis

The study adapted the two-stage approach of assessing the measurement model before the structural model, which has been widely accepted in prior studies (e.g., Medsker, Williams, & Holahan 1994; Zattoni, Gnan, & Huse 2012). Exploratory Factor Analysis (EFA) (i.e., principal axis factoring with Oblique factor rotation) and Confirmatory Factor Analysis (CFA) were first conducted to examine the reliability, validity, and goodness of fit for the measurement model. The next step involved specifying the structural model based on the proposed hypotheses, assessing its explanatory power, and testing the hypotheses. Demographic factors were also included in the structural model to control for their potential influence on risk tolerance. Additionally, *Asset Allocation* was regressed on both focal and demographic variables to offer additional insights into other relationships which were not tested in the structural model.[6]

4.3 Assessment of the Measurement Model

Exploratory factor analysis

Results from Bartlett's Test of Sphericity and Kaiser-Meyer-Olkin Measure of Sampling Adequacy supported the presence of sufficient inter-correlations among variables and also justified the use of factor analysis. Detailed item analysis as suggested by Netemeyer, Bearden, and Sharma (2003) resulted in the deletion of two redundant *Trust* items. All factor loadings were greater than .50 and loaded primarily on one construct without cross-loading items. Overall, three multi-item factors: *Trust, Financial Literacy*, and *Risk Tolerance* explained 70.35 percent of the data variance. Cronbach's alpha values also indicated that the three focal constructs were generally reliable.

Confirmatory factor analysis

The overall measurement model of the focal constructs showed an adequate fit with $\chi2$=292.08, *d.f.*=69, *p*<.001, CFI=.94, RMSEA=.08, SRMR=.05. Also, inspection of standardised residuals revealed that all residual statistics were less than the threshold value of 4 and most were less than 2.5. Table 1.2 presents the CFA results for *Trust, Financial Literacy*, and *Risk Tolerance*. Additionally, the standardised loading estimates of all items were .50 or greater and significant at *p*<.001, confirming the factor structure specified in EFA. Thus, all items were kept for further analysis.

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[6]All the analysis was performed with SPSS20 and AMOS20.

Table 1.1: Mean, standard deviation, average variance extracted (AVE), Pearson's correlation coefficient, and Cronbach's alpha values for the focal and control variables

	M (SD)	AVE	Trust	Literacy	Risk Tolerance	Length	Asset Allocation	Age	Income	Gender	Marital status	Edu
Trust (1 to 5, from low to high trust)	4.12 (.71)	.75	(.94)									
Financial Literacy (1 to 5 or 7, from low to high literacy)	4.18 (1.14)	.67	.26**	(.82)								
Risk Tolerance (from 1 to 4 or 5, from low to high risk tolerance)	2.48 (.78)	.35	.18**	.38**	(.65)							
Relationship Length (1=less than 12 months, 5=more than 10 years)	3.32 (1.35)	-	.16**	.22**	.25**	-						
Growth Asset Allocation (% of $100,000 allocated to growth assets)	.62 (.30)	-	.10*	.14**	.40**	.15**	-					
Age (numeric)	56.86 (10.95)	-	.13**	.08	.02	.39**	-.05	-				
Income (1=less than $50,000; 6 = more than $250,000)	2.41 (1.37)	-	-.03	.08	.13**	-.10*	.12**	-.37**	-			
Gender (1=male, 0=female)	Male=52%, female=48%	-	.03	.28**	.21**	.12**	.07	.17**	.07	-		
Marital status (1=couple, 0=single)	Single=25%; Couple=75%	-	-.01	.15**	.09*	-.03	.10*	-.02	.27**	.27**	-	
Education (1=university graduate or higher, 0 otherwise)	Uni graduate or higher=54%, others: 46%	-	-.08	.01	.12**	-.06	.09*	-.19**	.18**	-.05	-.03	-

Note. ** $p<.01$, * $p<.05$
Mean values (M) of multi-item constructs: *Trust, Financial Literacy*, and *Risk Tolerance* were computed based on their summated/composite scale (average). Cronbach's alpha values of three multi-item constructs: *Trust, Financial Literacy*, and *Risk Tolerance* appear in parenthesis in the diagonal. *Relationship Length* and *Asset Allocation* were measured with one item only, thus no Cronbach's alpha values were calculated (-).

Table 1.2: Confirmatory factor analysis results using structural equation modelling for trust, financial literacy, and risk tolerance

	Standardised loading estimates		
	Trust	Fin Literacy	Risk Tolerance
The advice taking in to account all of the relevant information.	.87		
The advice explaining how the recommended strategies and products help me to achieve my needs and goals.	.84		
Faith in the financial adviser to provide the best advice.	.91		
Trust and confidence in the financial organisation that my adviser is affiliated with.	.90		
Being reassured by the reputation of the financial organisation that my adviser is affiliated with.	.82		
Self-rate of overall knowledge of financial matters.		.69	
I am knowledgeable about investing.		.88	
I am confident about my ability to invest.		.86	
To what extent are you willing to experience volatility to generate higher returns?			.63
Which of the following best describes your attitude towards investment losses?			.63
What is your willingness to risk shorter term losses for the prospect of higher longer term returns?			.61
How would you react if your investments were to decline in value by 20% in one year?			.50

Note. All estimates were significant at *p*<.001. Squared Multiple Correlations (SMCs) were also computed for each item. SMCs values ranged from .68 to .82 for *Trust* items, from .48 to .77 for *Financial Literacy* items, and from .25 to .40 for *Risk Tolerance* items.

Convergent and Discriminant validity

While AVE statistics for *Trust* and *Financial Literacy* demonstrated adequate convergent validity (greater than .50 as recommended by Hair et al. 2010), the AVE statistic for *Financial Risk Tolerance* was quite low at .35 (as shown in Table 1.1). Nevertheless, given the good loading estimates and satisfactory Cronbach's alpha value, *Financial Risk Tolerance* had acceptable convergent validity. Inspection of the standardised loading estimates revealed no cross-loading items, providing evidence for discriminant validity because each item corresponded with only one construct. Moreover, all three constructs' AVE values were greater than the squared inter-construct correlations regarding each construct, indicating good discriminant validity for the focal constructs.

4.4 Assessment of the Structural Model

Inspection of the hypothesised structural model's fit statistics revealed a good overall fit: $\chi2$=352.94, *d.f.*=132, *p*<.001, CFI=.95, RMSEA=.06, SRMR=.06. Reassuringly, all standardized residuals were less than the benchmark value of 4, and most were less than 2.5. Inspection of all the standardised path coefficients and their *p*-values showed support for all eight hypotheses. Path coefficients, standard errors, standardised path coefficients, and *p*-values are presented in Table 1.3 and Figure 1.2 displays the standardised path coefficients.

Table 1.3: Results of the structural model for the influence of risk tolerance on asset allocation with control variables

Path	B	S.E.	β	p
Relationship Length → Trust (*H3*)	.08	.02	.16	***
Relationship Length → Financial Literacy (*H2*)	.08	.02	.19	***
Trust → Financial Literacy (*H1*)	.22	.04	.26	***
Financial Literacy→ Risk Tolerance (*H5*)	.51	.08	.40	***
Relationship Length → Risk Tolerance (*H6*)	.11	.03	.23	***
Risk Tolerance → Growth Asset Allocation (*H7*)	.20	.02	.46	***
Age → Risk Tolerance	-.01	.004	-.15	*
Gender → Risk Tolerance	.22	.07	.16	**
Marital status → Risk Tolerance	.004	.08	.002	
Income → Risk Tolerance	.05	.03	.09	^
Education → Risk Tolerance	.18	.07	.13	**

Indirect effects (*H4* and *H8*)				
Independent variable	Dependent variable	Intervening variable(s)	p	Significance
Relationship Length	Financial Literacy	Trust (*H4*)	.003	**
Financial Literacy	Asset Allocation	Risk Tolerance (*H8*)	.001	**
Other indirect effects				
Independent variable	Dependent variable	Intervening variable(s)	p	Significance
Relationship Length	Risk Tolerance	Trust, Financial Literacy	.001	**
Trust	Risk Tolerance	Financial Literacy	.001	**
Relationship Length	Asset Allocation Decision	Trust, Financial Literacy, Risk Tolerance	.002	**
Trust	Asset Allocation Decision	Financial Literacy, Risk Tolerance	.001	**

Note. B=unstandardised path coefficients (unstandardised regression weights); *S.E.*= standard errors; *β*=standardised path coefficients (standardised regression weights); ****p*< .001, ** *p*<.01, * *p*< .05, ^*p*<.1
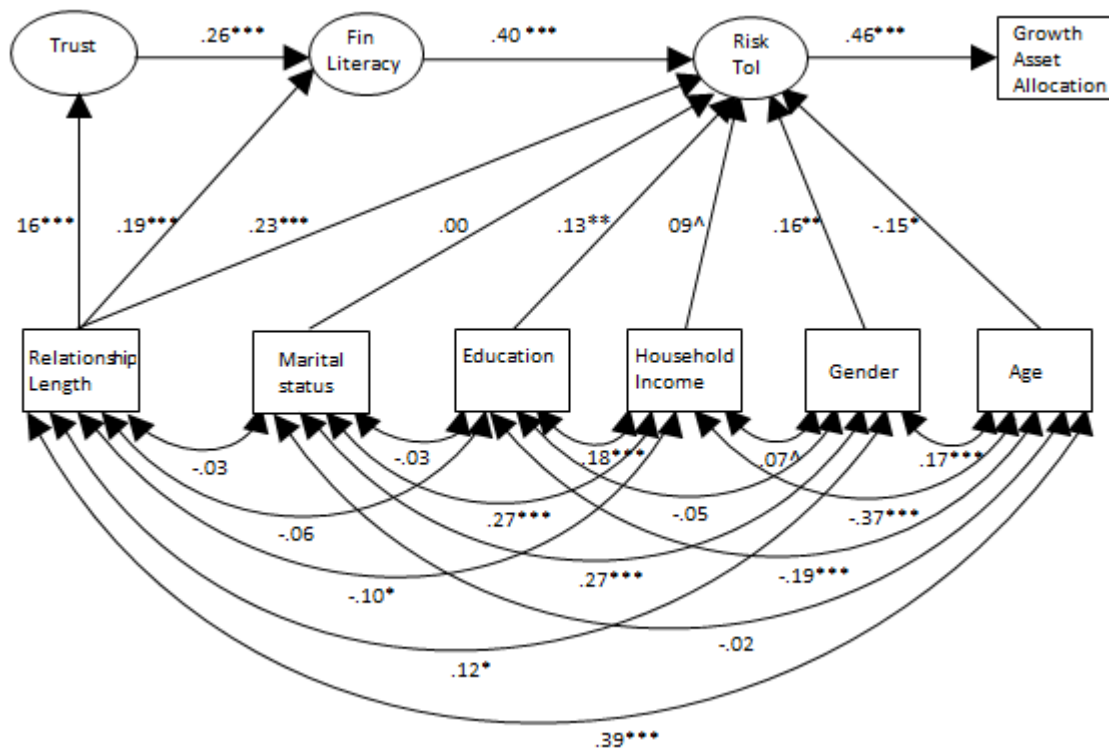
Figure 1.2: Hypothesised structural model for the influence of risk tolerance on asset allocation with control variables
Note.****p< .001, ** p<.01, * p< .05, ^p<.1.*

To ensure the model's parsimony, other relationships (e.g., between demographic variables and *Asset Allocation*) were not tested in the structural model. Instead, standard multiple regression analysis was conducted with all focal and demographic variables to offer additional insights into these relationships in the sensitivity analysis.

Results revealed support for all hypotheses. Both *Trust* and *Relationship Length* were found to be positively associated with *Financial Literacy* (*H1* and *H2*) (β_1=.26, p_1<.001, β_2=.19, p_2<.001). *Relationship Length* was also found to have a positive relationship with Trust (*H3*) (β_3=.16, p_3<.001). Inspection of the results of a bootstrapping procedure with 1000 samples and 99 percent biased corrected confidence interval revealed support for an indirect effect for *Relationship Length* on *Financial Literacy* through *Trust* (*H4*) (p=.003). Results also showed that *Financial Literacy* and *Relationship Length* were positively associated with *Risk Tolerance* (*H5* and *H6*), respectively (β_5=.40, p_5<.001, β_6=.23, p_6<.001). *Financial Risk Tolerance* was positively associated with the client *Asset Allocation Decision* (*H7*) (β_7=.46, p_7<.001). In addition to a direct positive influence on the *Asset Allocation Decision*, *Risk Tolerance* was also posited (*H8*) to intervene in the relationship between *Financial Literacy* and the *Asset Allocation*. Bootstrapping results showed support for this indirect effect (p=.001), indicating that *Financial Literacy* influenced *Asset Allocation* indirectly through *Risk Tolerance*.

Among control variables, only *Marital Status* was not significantly related to *Risk Tolerance*, other variables were significantly associated with *Risk Tolerance*. There was a negative relationship between *Age* and *Risk Tolerance* (β=-.15, p<.05), indicating that older people tend to be less risk tolerant. Males were also found to be more risk tolerant than females (β=.16, p<.01). *Income* was also found to be positively associated with *Risk Tolerance*

although the relationship was not strong (β=.09, p<.1), suggesting that clients with a higher level of annual income are likely to be more risk tolerant. Finally, clients with a university degree or higher were found to be more risk tolerant than others with lower education levels (β=.13, p<.01).

Significant direct and indirect relationships among the focal constructs above suggested a number of other indirect links among them. They included the indirect influence of (1) *Relationship Length* on *Risk Tolerance* through *Trust* and *Financial Literacy*, (2) *Trust* on *Risk Tolerance* through *Financial Literacy*, (3) *Relationship Length* on *Asset Allocation Decision* through *Trust, Financial Literacy*, and *Risk Tolerance*, (4) *Trust* on *Growth Asset Allocation* through *Financial Literacy* and *Risk Tolerance*. Bootstrapping results revealed support for all these indirect relationships (as shown in Table 1.3).

4.5 Comparison with other Nested Structural Models

Inspection of the modification indices did not suggest any additional theoretically justified path between the focal variables. But consideration was given to a potential nested model with a direct path from *Financial Literacy* to *Growth Asset Allocation* (as evidenced in Gallery et al. 2011a; Sachse et al. 2012). However, a comparison of the goodness of fit indices with the main structural model indicated that the nested model did not show a significant improvement in the indices: $\chi2$=346.41, *d.f.*=131, p<.001, CFI=.95, RMSEA=.06, SRMR=.06. As a result, and to maintain model parsimony, no additional paths were added (Zattoni et al. 2012).

4.6 Sensitivity Analysis for the Influence of Risk Tolerance on Asset Allocation

Asset Allocation was regressed on all focal constructs and demographic factors to examine their relationship with *Asset Allocation*. Composite scores (average) were used for multiple-item factors: *Trust, Financial Literacy,* and *Risk Tolerance*. The multiple regression analysis revealed a strong significant relationship (positive) between *Risk Tolerance* and *Growth Asset Allocation* (β=.37, p<.001), providing support for the positive influence of *Risk Tolerance* on *Asset Allocation* found in the structural model (*H7*). Only *Relationship Length* was found to have a significant link with *Asset Allocation* (β=.10, p<.05). However, *Risk Tolerance* appears to be more important with its standardised coefficient approximately four times as much as that of *Relationship Length*. Other variables including *Financial Literacy, Trust, Age, Gender, Marital Status, Income, Education* were not significant in explaining the *Asset Allocation Decision*. Overall, the multiple regression model produced a reasonable goodness of fit for this type of study (adjusted R^2=.17, $F(9, 528)$=12.76, p<.001).

5. Discussion and Conclusion

5.1 Discussion

This paper aimed to examine how financial risk tolerance influences individual investment decision-making in the financial advice context. Extending the literature, the study included client trust in the financial advice service, relationship length with the service, and client financial literacy as risk tolerance determinants in its framework. Financial risk tolerance was then posited to have a positive relationship with client investment decision (asset allocation) as more risk tolerant investors tend to invest more in risky assets (Hariharan et al. 2000; Cardak & Wilkins 2009).

Overall, extensive testing found support for the framework and all hypothesised associations. Specifically, the two relationship characteristics: trust and relationship length were found to be positively associated with financial literacy. Clients in long-term/trusting relationships with their financial adviser are more likely to acquire useful financial/investment knowledge from their experiences with the financial advice service (i.e., directly from communications with the financial adviser/planner or from provided materials such as statement of advice, product disclosure statement, and newsletters). Thus, the findings imply another benefit from using the financial advice service apart from the financial benefits which have been recognised by the Australian Government (e.g., ASIC 2010; KPMG Econtech research, as cited in Bushby 2014).

Compared with previous research which has been conducted in other contexts than the advice one, the finding of a positive association between trust and financial literacy is consistent with Levin and Cross (2004), Usoro et al. (2007), and Dale Stoel and Muhanna (2012). Similarly, the positive link between relationship length and financial literacy is in accordance with Mäkelä and Brewster (2009) and Mäkelä et al. (2012). Client relationship length with the financial advice service was also found to have an indirect impact on client financial literacy through client trust in the service, indicating trust as an explanatory factor for the positive influence of relationship length on financial literacy. To some extent, this finding is consistent with that of Levin and Cross's (2004) about the inter-relationships among a relational characteristic (trust), a structural characteristic (tie-strength), and the receipt of useful knowledge where trust acts as a mediator in the tie-strength–knowledge transfer relationship. By replacing tie-strength with another structural characteristic (i.e., relationship length) and by examining their relationship in the financial advice context, the study extends this body of research.

Results also support the behavioural perspective in explaining financial risk tolerance of individuals. Many individual investors are considered unsophisticated investors (i.e. not highly financially literate) and therefore prone to behavioural biases. Specifically, financial literacy and client-adviser relationship characteristics were found to influence (directly and indirectly) financial risk tolerance in our study. As mentioned previously, one of the possible barriers for financial advisers to provide sound advice for their clients is related to the concept of risk. The study's findings suggest advisers considering important factors as financial literacy and client-adviser relationship characteristics to better understand client risk tolerance, which is essential in their advisory process. Given the important role of the adviser-client relationship, it is also advisable that the wealth management/financial advice industry regulators should improve the relationship with clients.

Considering the influence of the client-adviser relationship, client financial literacy, and demographic factors, financial risk tolerance was found to have a positive relationship with asset allocation decisions. This positive association is in accordance with prior research (e.g., Hariharan et al. 2000; Cardak & Wilkins 2009) and was also confirmed in the sensitivity analysis. Furthermore, risk tolerance was found to intervene in the relationship between financial literacy and decision-making, suggesting that less financially literate clients who tend to be less risk tolerant are more likely to allocate their funds into less risky assets.

Finally, the paper also provides further evidence for the link between demographic variables and risk tolerance. Except marital status which was not found to be significantly related to risk tolerance in this study, as consistent with Hallahan et al. (2003) and Grable and Roszkowski (2008), other variables including age, gender, education, and income were

significantly associated with risk tolerance. There was a negative relationship between age and risk tolerance indicating that older people tend to be less risk tolerant (Grable & Roszkowski 2008; Gibson et al. 2013). Males were also found to be more risk tolerant than females, consistent with the common belief in the literature (e.g.,Hallahan et al. 2003; Grable & Roszkowski 2008; Gibson et al. 2013). Income was also found to be positively associated with risk tolerance, suggesting that clients with a higher level of annual income are likely to be more risk tolerant (Ardehali et al. 2005; Gibson et al. 2013). Finally, clients with a university degree or higher were found to be more risk tolerant than others with lower education levels as in line with Grable and Joo (1999, 2004), Grable (2000), and Grable and Roszkowski (2008).

5.2 Limitations and Areas for Future Research

Given these significant findings, it is however important to acknowledge some limitations of this research which can provide directions for future research. As the study was cross-sectional, it can be subject to the common method variance problem (CMV) (Lindell & Whitney 2001). However, as shown previously, results from the Harman's single factor test and latent CMV factor revealed that CMV was not likely to be a concern in the study. Researchers can consider using experiments to study the causal relationships among the key constructs or conducting longitudinal studies to examine the longitudinal effects. The variable selection bias is also a potential limitation which can be addressed in future research. Consistent with the scope of the research, the most relevant influencing factors in the advice context were used. For instance, the paper focused on the key risk construct: risk tolerance due to its important role and popularity in the financial advice context. Other risk aspects such as risk perception can be examined in future study. Similarly, client trust in the financial adviser, financial advice provided, and the adviser's institution was used to reflect a relational characteristic of the client-financial advice service relationship. This leaves areas for future research to examine the impact of other potential influencing factors. Furthermore, researchers can also consider conducting dyadic research for both advisers and clients or expanding the research in other countries.

5.3 Conclusion

To conclude, using data collected from 538 financial adviser clients in Australia, the study has provided evidence for the influence of risk tolerance and its determinants on individuals' investment decision-making in the financial advice context. Findings are expected to help financial advisers and industry regulators better understand client risk and how it influences client decision-making. Given the growing importance of wealth management, such knowledge is expected to be helpful for financial advisers in improving their client financial well-being.

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