

## THE INFLUENCE OF FINANCIAL BEHAVIOUR ON FINANCIAL RISK TOLERANCE IN INVESTMENT DECISION: A CONCEPTUAL PAPER

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**ABSTRACT** – There is a growing stream of research seeking for a solution to improve financial risk tolerance (FRT) in investment decisions, which is most likely conducted from financial institutions and was revealed that there are varieties of factors contribute to this aspect. The literature demonstrated that FRT is considered as the powerful factor that encourages investors' intentions towards investments. In order to increase FRT, previous studies on FRT had focused on the factors that affect FRT levels within financial practices. However, there is scarce conceptual and theoretical knowledge in financial studies discussing the influence of financial behaviour on FRT in investment decision. Therefore, this paper proposes a theoretical framework to describe the influence of financial behaviour on FRT in investment decision in Malaysian market. Previous global studies show that the FRT can be improved through positive financial behaviour. Hence, it is essential to explore financial behaviour and FRT influences in investment decision within Malaysian context. This wide discussion will benefit financial practitioners and institutions in financial practices by stressing on indicators for how FRT and financial behaviours are measured previously. In addition, this study surely contributes some additional insights towards existing literature.

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## INTRODUCTION

Financial behaviour is the result of financial knowledge and self-confidence (Ramalho & Forte, 2019). Tang and Baker (2016) suggested that psychological traits such as self-esteem have an important role in explaining differences in financial behaviours. Based on results from a nationally representative dataset of United States adults, the study argued that self-esteem significantly impacts financial behaviour both directly and indirectly through subjective financial knowledge after controlling for financial knowledge and other socioeconomic factors.

On the other hand, financial risk tolerance (FRT) can be explained by the amount of risk a person is willing to take when making a financial decision or investment (Ferreira & Dickason, 2018). A study by Banner and Neubert (2016) stated that higher risk tolerance relates positively to both standard and sophisticated investments for men, but only to standard investments for women. However, there is no relationship found between risk tolerance and women's sophisticated investments.

In order to increase FRT, previous studies on FRT had focused on the factors that affect FRT levels within financial practices. However, there is scarce conceptual and theoretical knowledge in financial studies discussing the influence of financial behaviour on FRT in investment decisions. In order to fill the gap, this paper proposes a theoretical framework to describe the influence of financial behaviour on FRT in investment decisions in Malaysian market.

In this study, there is an underpinning theory that explains financial behaviour and its relation with FRT in investment decisions. According to the theory of planned behaviour (TPB), behavioural decisions are the outcome of the reasoning process in which the behaviour is influenced by norms, attitudes, and perceived control behaviour (Sommer, 2011). This theory has been practised in a wide range of behavioural fields in order to have a better understanding of how individuals behave the way they do. Sommer (2011) also describes this theory as one of the best-supported social psychological theories to predict human behaviour. In this proposed conceptual study, financial behaviour is examined to explain its connection to individuals' FRT in investment decision-making.

From this study, investment firms will benefit from the insights provided on ways to avoid behavioural biases in making decisions for investments, then deal with risk in investment. This is due to the various challenges in the investment industry to be encountered in order to enhance high-quality financial performance and business outcomes, such as job opportunities and economic growth (Gold & Taib, 2020; Wang et al., 2020; Al-sakkaf et al., 2020). In this study, FRT is examined as the possible product of financial behaviour in investment decision-making.

## LITERATURE REVIEW

This study conducted a review of previous studies on subjects regarding financial behavior and FRT, especially in investment products. The findings are as follows.

### Financial behaviour

Financial behaviour aspect can be determined by several indicators. For example, Paisarn et. al (2021) indicated that demographic factors such as gender, years of experience in trading, age, and income play their roles in shaping trading behaviour amongst stock market investors. Whereas, Kaiser and Menkhoff (2017) argued that financial education is found to significantly explain financial behaviour amongst individuals. However, this variable was found to be less effective for low-income and low-middle income economies. Specifically, behaviour like debt handling is poorly in-charged that financial education should be introduced formally as early as possible. This is because individuals from low-income and low-middle income households do not possess higher education. Therefore, basic financial education together with basic mathematical ability should be introduced in higher primary or lower secondary education. That is when children are between 10 to 15 years of age.

### The effects of financial behaviour

On the other hand, there are several studies investigating the effects of financial behaviour around the globe. For instance, financial behaviour is believed to give an impact on financial well-being and financial market participation. In line with the growing issues in financial management amongst youths, Lajuni et. al (2017) studied financial distress amongst the age group. The study stated that financial behaviour and the role of educators give an impact on personal financial distress amongst undergraduate students in Sabah Territory, Malaysia. Financial mismanagement is believed to be responsible for alarming bankruptcy amongst youths where a study reported that on average 11 youths are declared bankrupt every day in the country.

The study believes that children spend more time in schools and higher education institutions than family after they started primary school. In other words, teachers and lecturers play roles as parents from the moment children started their school period until they graduate high school or higher education, and then start working, where their financial management ability should be already taken place. Therefore, the education system should transform from the traditional belief that parents should crystallise their children's financial management ability to educators' roles, considering the long time children spend in schools and higher education as compared to with their families. Meanwhile, Lajuni et al. (2018) added that behavioural traits have a stronger impact on personal financial distress than religiosity and financial knowledge amongst the Malaysian millennial generation.

### Financial risk tolerance

In addition, financial risk tolerance is believed to be an important determinant in shaping consumers' financial decisions (Grable, 2016). According to Stanley and Chok (2017), effective financial decisions and financial planning are crucial in achieving financial independence, especially for education planning, insurance needs, and long-term retirement planning for working married couples with children, since pension funds currently are found to be inadequate for most people.

Therefore, Mankuroane (2021) argued that FRT is the measurement usually considered by financial institutions when profiling the investors' intentions towards short-term and long-term investments. Findings from the study suggest that risk tolerance plays a role in predicting investors' intentions to invest in short-term and long-term investments in South Africa.

Besides risk tolerance, investors' intentions towards an investment are also supported by further consideration of companies' financial ratio information on liquidity, leverage, profitability, performance of the company, and the dividend payout ratio (Kazemian et. al, 2017; Seng & Thaker, 2018; Nguyen, 2019). From this information, investors will have some calculations on how much return they can expect from their investment, and decide whether to invest or otherwise. Furthermore, according to Yakubu (2021) and Hussain et al. (2020), dividend policy is significant in investment decisions and has a crucial role in determining a company's survival in business competition as one of the ways to attract investors to have a shareholding in the company. Therefore, a company should improve its financial performance to overcome the competition.

### Factors influencing financial risk tolerance

In addition, there are also several studies conducted previously to examine the factors that give an impact on FRT. For example, Irandoust (2017) stated that portfolio structure, financial literacy, educational attainment, income, financial stability, age, gender, marital status, and family size give an impact on FRT amongst Swedish. Meanwhile, in Pakistan, Shah et. al (2020) investigated the same indicators. The study examined whether demographic factors, namely age, gender, education, occupation, experience, income, location, and saving determine individuals' FRT. The study showed that individuals with higher income, higher savings, higher education level, and older age have higher FRT. In addition, geographical difference is also found to explain different levels of FRT amongst respondents in Pakistan.

In terms of geographical difference, investment firms should consider relocating branches to urban areas as the residents there are more risk-tolerant to take part in investment programs. This step is taken into account to ensure service efficiency. As for rural area residents, investment firms should consider educational programs to increase their investment knowledge and improve their risk tolerance level.

In this regard, Beer and Wellman (2021) assessed the impact of perceived stigmatisation and salience of discrimination on FRT amongst gay men. Findings from the assessment show that higher FRT is associated with individuals with anticipated stigmatisation, after being exposed to information about bias against their community. The conclusion from

the study can provide some insights towards further investigations involving socially stigmatised, discriminated, and minority groups of a country.

Meanwhile, Fan et al. (2020) investigated demographical significance in risk tolerance in the United States. The study examined the roles of gender, political affiliation lines, and income in differences in risk tolerance, constraints, beliefs, and behaviours amongst adults during the Covid-19 pandemic. Consistent with most previous studies, the study indicates gaps in risk tolerance between men and women. Men are found to be more risk-tolerant because most of them are the breadwinner of their families and earn more than women. In addition, Mankuroane (2021) emphasised that demographic factors play roles in impacting the level of risk tolerance that investors are willing to accept, which will also determine their life satisfaction.

On the other hand, a study by Khan (2017) proved that investors and employed individuals that are male, having matriculation or O-level education, expecting an inheritance, transfer of asset or both, together with personality traits such as achievement, vigilance, positive and negative emotions in an uncertain environment, explain FRT significantly. In addition, risk tolerance is also explained significantly by cultural dimensions, for instance, femininity and uncertainty avoidance. Meanwhile, FRT is found to not be explained by future outlook. Pinjisakikool (2018) explored the big five personality traits as the factors that explain differences in FRT amongst households in Netherland. The study found that all the big five personality traits namely extraversion, agreeableness, conscientiousness, emotional stability, and intellect significantly predict FRT. These studies by Khan (2017) and Pinjisakikool (2018) on personality traits agree with the finding by Rabbani et. al (2020) that personality traits affect one's overconfidence, then their FRT. According to the study, men are more overconfident than women. This explains their higher level of FRT, besides earning more money.

Fisher and Yao (2017) also explored gender differences in financial risk tolerance. This study revealed that determinants in individuals that affect financial risk tolerance are different for men and women, and this explains gender roles to determine financial risk tolerance. Wealth, as well as income uncertainty, are found to be associated with high-risk tolerance differently for men and women. In addition, in the highlands of Ethiopia, Ferdinand et. al (2018) indicated higher risk tolerance amongst household heads there as compared to respondents from Western and middle-income countries. The finding suggests that geographical factor also plays a role in determining individuals' FRT.

Meanwhile, amid vulnerabilities concern around older adult investors in Chicago, Samanez-Larkin et. al (2020) studied the impact of financial literacy and confidence in financial knowledge on financial risk-taking amongst senior citizens aged 58 to 101. It was revealed from the study that overconfidence in financial knowledge measurement gives an impact on self-reported FRT positively. Age was also found to explain FRT negatively. In terms of age, older age was found to be associated with higher FRT due to more experience and money earned. However, amongst senior citizens, the situation is different because, after age 58 or retirement, their physical abilities to find money decrease, and recovery from potential investment loss become less possible to survive living.

Moreover, in India, Undale et. al (2021) showed consistent implications of gender factors on risk tolerance as in previous studies. The study investigated the impact of gender and income on comfortability and security concerns to use eWallet, amid national lockdown due to the Covid-19 pandemic. The study suggested that female consumers are more risk intolerant about cyber-crime attacks over eWallet digital payment than male consumers. Consumers from the middle-income group also are found to be more anxious than the respondents from the lower-income group about the security of eWallet financial transactions.

### Studies on financial behaviour and FRT in investment decisions

There are several investigations conducted globally regarding studies on financial behaviour and FRT in investment decisions. For instance, Arianti (2018) analysed and measured the significance of financial behaviour, financial literacy, and income on Indonesian students' investment decisions. In line with previous studies, the study showed that financial behaviour and income have a significant impact on investment decisions. Investors with higher income are more willing to invest as they have more money left after spending on basic expenses. Meanwhile, financial literacy does not explain their investment decision.

Moreover, studies by Aboagye and Jung (2018), as well as Arianti (2018), indicated that financial behaviour and income have a significant impact on investment satisfaction amongst investors. In addition, in the investment management industry, Ahmad et. al (2017) emphasised that understanding institutional behaviour is essential as it can determine the asset prices and consequently the market behaviour. For instance, biased behavioural finance amongst fund managers in investment management potentially results in exposure to a wide variety of behavioural risks in portfolio trading and investment management strategies. On the other hand, Parmitasari (2018) analysed the effect of investment ethics on the behaviour of capital market investors and its significance on their financial satisfaction in Makassar, South Sulawesi, Indonesia. The study argued that investment ethics and investment behaviour give an impact on investors' financial satisfaction. Moreover, the study also reported that investment ethics affect financial satisfaction through investors' behaviours.

Meanwhile, in the United States, Rabbani et. al (2020) investigated the influence of sensation seeking and locus of control on financial risk tolerance in retirement investment portfolios amongst pre-retiree baby boomers. The study concluded that sensation-seeking determinants positively correlate with FRT. Whereas, the external locus of control orientation is found to explain the low level of FRT in the investment schemes. This is because the external locus of control individuals tend to blame external factors such as fate and luck when they face loss in their investments. Unlike

external locus of control, internal locus of control investors, however, tend to see their ability as factors that lead to their investment success, such as investment knowledge and wisdom to make a decision.

In this regard, Naqvi et. al (2020) also examined the influences of biopsychosocial indicators, namely sensation seeking, self-esteem, and personality type on FRT and financial satisfaction. Macroeconomic literacy acts as mediating role in this relationship. Consistent with the previous finding, the study concluded that sensation seeking, self-esteem, and personality influence FRT significantly amongst retail investors in China. Whereas, amongst the three biopsychosocial indicators, only self-esteem and personality type influence financial satisfaction significantly. In addition, Mukhtadir-Al-Mukit (2020) analysed the correlation between sociodemographic factors with the level of FRT of stock market investors amongst capital market investors in Bangladesh. The level of FRT is measured by portfolio beta and reflected by investors' trading behaviour. From the assessment obtained, the study indicates that marital status, family size, as well as financial responsibility, explain significantly the variety in levels of financial risk tolerance amongst the stock market investors. Married status, as well as bigger family size and financial responsibility often associated to lower FRT, since household leaders are concerned about financial stability to support more dependents and financial commitments. Therefore, they are more comfortable surviving with basic salaries without thinking of growing the money.

Meanwhile, Ainia and Lutfi (2019) investigated the relationship between risk tolerance, risk perception, overconfidence, and loss aversion with investment decision-making amongst workers in Jombang and Surabaya, East Java, Indonesia. The study argued that risk tolerance and overconfidence have positive relations with investment decision-making. Meanwhile, the study also proved that risk perception negatively affects investment decision-making. Loss aversion on the other hand insignificantly affects investment decision-making. Moreover, Dohmen et. al (2018) examined the association between cognitive ability and risk as well as uncertainty in decision making. The study concluded with the influence of cognitive ability on risk-taking behaviour. Whereas, Imran and Yusnidah (2019) argued the effect of cultural aspects on the level of risk avoidance in the stock market amongst Pakistani individual investors.

In addition, Ebrahimi and Sabunchi (2020) also examined stock investors. The study examined the influence of demographic profiles such as age, gender, education, marital status, income, and job status on the level of risk tolerance amongst stock exchange investors in Iran. The finding of the study is in line with previous findings on gender, where men are found to be more risk-tolerant than women. The study also argued that FRT levels are significantly influenced by age, education, income, and job status. However, unlike other studies, the marital status of respondents was found to be insignificant to their risk tolerance in financial decision-making. In this case, there are different situations amongst married individuals. Some married couples find more financial security when both the husband and wife are working. Meanwhile, for other couples where only one of the husband or wife is working, investment risk is a bigger concern. Saputra (2020) on the other hand, indicated that investors' FRT changes with the changes in investment value.

In this regard, a study by Mohan and Singh (2017) concluded that FRT is affected by age, education level, marital status, and the number of dependents by risk profile analysis. According to the study, FRT was defined by the degree of volatility in returns that investors are willing to tolerate for their investment. Whereas, Zeeshan et. al (2021) also investigated the demographic factors affecting individuals' investment risk tolerance. The study concluded that gender, education, and income positively affect the level of risk tolerance. It is also found that age, work experience, and marital status negatively affect risk tolerance levels among individual investors.

Moreover, Mokoena et. al (2021) explored investors' propensity to take risks in Stokvels (also known as credit unions globally) stock investment. The study analysed the levels of risk tolerance amongst investors based on their demographical variables. Results from the analysis indicate that higher risk tolerance is associated with male, younger, and high-income individual investors. However, Thanki and Baser (2021) argued that investors' age does not give an impact on investment risk tolerance in contrast.

On the other hand, Bellucci et. al (2020) analysed the data on conflict events during the Second World War (WW2) and the European Survey on Health, Ageing, and Retirement to examine the significance of variation in war exposure during childhood on adults' FRT. The analysis reveals that adults who were exposed to WW2 during childhood are found to have lower FRT that they are less likely to invest in stocks. Experiencing war episodes as kids also decrease their share of stocks held as compared to non-exposed individuals. The findings prove comparable long-term effects of low or high-intensity war exposure on individuals' financial psychology, for instance enhancing uncertainty sensitivity. Therefore, investment firms should consider the psychological impacts of potential investors from war or conflict zones. A suitable approach, investment package, and rate of return can be implemented as a marketing strategy.

Moreover, Memarista and Puspita (2021) examined the investment risk appetite of young stock investors through their Instagram activities as their social networking sites. The results suggest that the use of Instagram as a social connection platform and the number of followers on Instagram give an impact on the extroversion personality significantly. This extroversion personality then gives impacts significantly on the investment risk appetite. This finding concludes the relationship between social media engagement with self-confidence amongst the younger generation nowadays. As youngsters feel more connected, they feel more confident in decision-making as their support systems get stronger. Whereas, Hong et. al (2020) explored the role of financial technology (FinTech) in optimising risk-taking as the parameter to lower the investment barriers amongst households across cities in China. The study indicated that risk-taking increases with the FinTech penetration in the Chinese market. Higher risk-tolerant individuals are also found to benefit more from FinTech advancement.

In this regard also, Dickason-Koekemoer et.al (2020) examined whether FRT is explained by investors' subjective financial well-being and their demographic variables in South Africa. The study revealed that financial well-being, indicated by their state of being financially free and the ability to meet their present and future desired standard of living

explains different levels of FRT in investment decisions. High financial well-being, African in ethnicity, as well as female investors aged 35 to 49 who are not married are associated with high-risk tolerance, indicated by their willingness to invest in high-risk portfolios. This result shows that the native residents of a country are more risk-tolerant than foreigners.

### Studies on financial behaviour and FRT in investment decisions in Malaysia

In Malaysia, there are also several studies carried out around financial behaviour and FRT in investment decisions. For instance, Rahman and Gan (2020) examined the behavioural factors that influence investment decisions amongst generation Y individuals. The five behavioural factors examined in this study are overconfidence, self-monitoring, herding factor, trait anxiety, and trait anger. The study suggested that overconfidence and trait anxiety negatively impact investment decisions. Meanwhile, self-monitoring positively impacts investment decisions. Herding behaviour and trait anger on the other hand do not significantly explain investment decisions.

In this regard, Chin (2021) studied the underlying psychological and sociological determinants that drive excess trading of the stock market in Malaysia during a global health crisis, such as the Covid-19 pandemic. The study utilised the big-five personality traits, demographic profiles, and investment behaviours to measure their relations with investors' trading frequency. The investigation indicated that personality traits such as agreeableness and openness to experience have significant impacts on trading frequency. In addition, there were also significant positive impacts of demographic factors and investment behaviours, for instance, gender, income level of household, years of investment experience as well as the type of investors on trading frequency.

Kamil et. al (2018) examined the effects of risk tolerance perception, funds' size perception, perception of funds' commitment to shari'ah compliance, and perception of past performance on the choice of unit trust funds amongst retail investors in Malaysia. The study concluded that risk tolerance perception and perception of past performance do not impact respondents' selection of unit trust funds. However, their selection was influenced heavily by the perception of funds' commitment to *shari'ah* compliance and the perception of funds' size. According to Hasnat and Alom (2017), *shari'ah* principles refer to practices derived from *Quran* and *Sunnah* and in Malaysia, the concept of *shari'ah* compliance in finance and banking is essentially recognised. In addition, inputs about investors' investment decisions in unit trust help them to decide either to buy, hold, or sell fund units within their strategy in building optimal portfolio diversifications to reach their financial goal in long run (Othman et. al, 2018).

Moreover, Queen and Hassan (2019) measured investment risk tolerance amongst Malaysians and determined the factors affecting their investment risk tolerance for retirement plans. The study proved that factors such as age and income level have significant correlations with investment risk tolerance for retirement plans. Meanwhile, factors such as gender and education level did not explain the investment risk tolerance examined in this study. In addition, Ahmad Fauzi et. al (2017) studied FRT as the predictor for urban public sector employees' gold investment behaviour in Peninsular Malaysia. The study revealed that FRT plays a significant positive role in explaining investors' interest in gold investment as gold investment is perceived as a safe investment.

The risk tolerance aspect also plays an important role in indicating financial vulnerability amongst Malaysians. Loke (2017) argued that risk tolerance significantly explains the variation in individuals' financial vulnerability and that risk-takers are more likely to be financially vulnerable. However, risk-takers who diversify their savings to include bonds and stock holdings instead of depending solely on bank savings are found to be less financially vulnerable. The study investigated the FRT levels amongst working adults aged 18 to 60 in Malaysia to investigate the characteristics of financial vulnerability individuals. Based on two indicators, financial vulnerability was measured by the level of emergency savings for income shock and debt-to-income ratio.

Table 1 below shows the analysis of studies on financial behaviour and other factors that give an impact on several financial aspects including FRT in participation of investment products in global and Malaysian markets.

**Table 1.** Factors that give an impact on several financial aspects in participation of investment products in global and Malaysian market

Region and Author	Independent Variable	Dependent variable	Investment Product	Findings
Global				
Indonesia (Arianti, 2018)	Financial behaviour and income	Investment decisions	Investment	Financial behaviour and income have significant impacts on investment decisions
United States (Aboagye & Jung, 2018)	Financial behaviour and income	Investment satisfaction	Investment	Financial behaviour and income have significant impacts on investment satisfaction
Indonesia (Arianti, 2018)	Investment ethics and investment behaviour	Financial satisfaction	Investment	Investment ethics and investment behaviour give impacts on investors' financial satisfaction
United States (Rabbani et al., 2020)	Sensation seeking and locus of control	FRT	Retirement portfolio	Sensation seeking positively correlates with FRT. External locus of control orientation is found to explain low level of FRT in the investment scheme
China (Naqvi et al., 2020)	Sensation seeking, self-esteem, and personality type	FRT and financial satisfaction.	Retail investment	Sensation seeking, self-esteem, and personality influence FRT significantly. Only self-esteem and personality type influence financial satisfaction significantly
Bangladesh (Muktadir-Al-Mukit, 2020)	Socio-demographic factors	FRT	Stock investment	Marital status, family size, and financial responsibility explain FRT significantly
Indonesia (Ainia & Lutfi, 2019)	FRT and overconfidence	Investment decision making	Investment	FRT and overconfidence have positive relations with investment decision making
Pakistan (Imran & Yusnidah, 2019)	Cultural aspect	Risk avoidance	Stock investment	Cultural aspect gives impact on the level of risk avoidance

Iran (Ebrahimi & Sabunchi, 2020)	Age, gender, education, income, and job status	FRT	Stock investment	Men are found to be more risk-tolerant than women. FRT levels are significantly influenced by age, education, income, and job status
India (Mohan & Singh, 2017)	Age, education level, marital status, and number of dependents	FRT	Investment	FRT is affected by age, education level, marital status, and number of dependents
Pakistan (Zeeshan et al., 2021)	Gender, education, income, age, work experience, and marital status	Investment risk tolerance	Retail investment	Gender, education, and income positively affect level of risk tolerance. Age, work experience, and marital status negatively affect risk tolerance levels
South Africa (Mokoena et al., 2021)	Demographical variables	FRT	Stock investment	Higher FRT is associated with male, younger, and high-income individual investors
Europe (Bellucci et al., 2020)	Conflict events WW2	FRT	Stock investment	Adults who were exposed to WW2 during childhood are found to have lower FRT and they are less likely to invest in stocks
Indonesia (Memarista & Puspita, 2021)	Instagram's activities	Investment risk appetite	Stock investment	The use of Instagram as a social connection platform and the number of followers on Instagram give impact the extroversion personality significantly, then gives impact significantly on the investment risk appetite
China (Hong et al., 2020)	FinTech penetration	Risk-taking	Investment	Risk-taking increases with the FinTech penetration in the market
South Africa (Dickason-Koekemoer et al., 2020)	Subjective financial well-being and demography	FRT	Investment decision	High financial well-being, African in ethnicity, and female investors aged 35 to 49 who are not married are associated with high FRT
<b>Malaysia</b>				
Rahman and Gan (2020)	Behavioural factors	Investment decision	Investment	Overconfidence and trait anxiety negatively impact investment decisions. Self-monitoring positively impact investment decisions
Chin (2021)	Big-five personality traits, demographic profiles, and investment behaviours	Trading frequency	Stock investment	Personality traits such as agreeableness and openness to experience have significant impacts on trading frequency. Gender, income level of household, years of investment

				experience and type of investors positively and significantly impact trading frequency
Queen and Hassan (2019)	Age and income level	Investment risk tolerance	Retirement plans	Age and income level have significant correlations with investment risk tolerance for retirement plans
Ahmad Fauzi et al. (2017)	FRT	Investment interest	Gold investment	FRT plays a significant positive role in explaining investors' interest in gold investment
Loke (2017)	FRT	Financial vulnerability	Bonds investment, stock investment	Risk-takers are more likely to be financially vulnerable. Risk-takers who diversify their savings to include bonds and stock holdings instead of depending solely on bank savings are found to be less financially vulnerable

From the table above, measurements for FRT, financial behaviour, and some dependent and independent variables are explained below:

**Financial risk tolerance**

Rabbani et al. (2020) utilised data from the National Longitudinal Survey of Youth 1979 (NLSY79) to measure FRT amongst baby boomers. Baby boomers were respondents who were born between 1957 and 1964. In the study, FRT was measured by a single item 0 to 10 FRT measurement survey question as follows. “ People can behave differently in different situations. How would you rate your willingness to take risks in financial matters? Rate your willingness from 0 to 10,” where 0 means “ unwilling to take any risks”, and 10 means “ fully prepared to take risks.” A higher score was considered as a higher level of willingness a respondent is ready to bear.

Meanwhile, Bellucci et al. (2020) reconstructed the monetary value of directly held stocks, resources invested in mutual funds, and individual retirement accounts (IRA) amongst respondents. The study then computed the composition of mutual funds and IRA using the self-reported fraction of accounts that are mostly invested in bonds, stocks, or equally split. As stocks represent the riskiest financial instrument, the study used stock ownership and stock share as proxies for financial risk-taking. Life insurance is, instead, mostly a financial tool to protect against unexpected negative life events. It can, therefore, be considered as a financial by-product of risk aversion regarding life.

Queen and Hassan (2019) used primary data collection through a questionnaire to measure FRT. The questionnaire was designed to evaluate the risk tolerance of respondents within Klang Valley, Malaysia. The questions were adopted and adapted from the “Schwab Model Portfolios” which were created by Charles Schwab & Co. Each question provides a specific score for a different choice that indicates respondents’ risk tolerance.

**Financial and investment behaviour**

Parmitasari (2018) distributed a questionnaire amongst respondents to measure their investment behaviour and investment ethics. Whereas Arianti (2018), as well as Aboagye and Jung (2018), applied the same approach to measure financial behaviour. Aboagye and Jung (2018) measured financial behaviour based on some indicators. The indicators include spending behaviour, difficulty of bill payments, budget, risk tolerance, credit card behaviour, emergency fund, and retirement savings.

Spending behaviour was measured using three categories; less than income, same as income, and more than income. The difficulty of bill payments was also measured using three categories; extremely difficult, somewhat difficult, and not difficult at all. The budget was coded as 0-1 dummy, where having a budget was coded as 1 or otherwise 0. Risk tolerance was measured on a 10-point Likert scale, with 10 representing the highest risk tolerance level. Credit card behaviour was examined with six yes/ no questions related to credit card bill payments. Emergency fund and retirement savings were also measured on a yes/ no binary scale.

### Investment decisions

Arianti (2018), as well as Rahman and Gan (2020), examined investment decisions by distributing questionnaires among respondents. Employing a self-completion survey, Rahman and Gan (2020) evaluated investment decisions using five items adapted from Kourtidis et al. (2011) amongst Generation Y, namely those born between 1981 and 1999 in Malaysia. All questions in the questionnaire were formulated using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

### Financial and investment satisfaction

Parmitasari (2018), as well as Aboagye and Jung (2018), distributed questionnaires amongst respondents to measure their financial satisfaction. Aboagye and Jung (2018) measured financial satisfaction using a single-item question, which asked the respondents to rate their overall satisfaction with their current financial situation on a 10-point Likert scale with 10 representing extremely satisfied.

### Locus of control and sensation-seeking

Rabbani et al. (2020) measured the locus of control as a respondent's belief about the degree of control they have over life outcomes. The locus of control variable was created by summing scores from four loci of control items. The four items asked about the degree of control one has over the direction of one's life, the importance of planning, the importance of luck, and the degree of influence one has over life outcomes. Higher scores corresponded to an external locus of control orientation. Respondents with an external locus of control orientation believe that what happens in life is based primarily on luck, chance, and the influence of other people. Whereas, those with a strong internal locus of control orientation believe that they have control over their own life and life outcomes. The study on the other hand did not measure sensation-seeking directly but utilised an indicator variable. Respondents were asked whether they had ever used drugs, as a proxy for sensation seeking.

### Overconfidence and trait anxiety

Employing a self-completion survey, Rahman and Gan (2020) evaluated overconfidence using seven items from Mumaraki and Nasieku (2016). Meanwhile, trait anxiety was evaluated using 20 items adapted from Gambetti and Giusberti (2012) amongst Generation Y, namely those born between 1981 and 1999 in Malaysia. All questions in the questionnaire were formulated using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

### Big-five personality traits

Chin (2021) measured big-five personality traits by distributing questionnaires to respondents. The questions were adopted from NEO Five-Factor Inventory-3 (Form S, NEO-FFI-3). There are a total of 60 questions that measured the five personality traits, namely Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. These personality traits were tested with 12 questions each. Respondents answered the questions on a 5-point Likert scale ranging from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) to 5 (strongly agree).

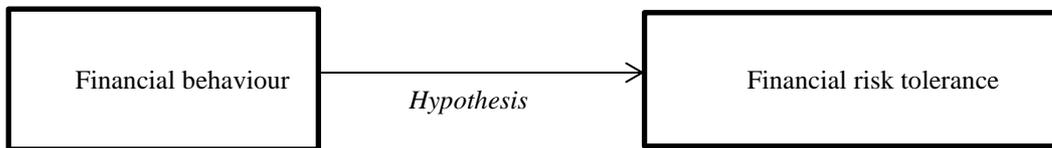
### Financial vulnerability

Loke (2017) measured financial vulnerability by face-to-face interview data collection amongst respondents. The levels of financial vulnerability were defined as low, moderate, and high. This variable was measured by two indicators, namely debt-to-income ratio and funds sustainability in the event of income loss. For the debt-to-income ratio, an individual regarded as having a debt-to-income ratio within the suggested ratio of 30 percent or below was classified as the value 0, or 1 otherwise. Conversely, an individual who has adequate funds within the suggested level of emergency savings of at least three months or more was classified the value 0, or 1 otherwise. Summing the two indicators provide the individual's level of financial vulnerability. In other words, the values of financial vulnerability range from 0 to 2. For example, if an individual has a debt-to-income ratio of 30 percent and below but has emergency savings of less than three months, the financial vulnerability score of the individual equals 1. Hence, putting the individual at a moderate level of financial vulnerability. Conversely, if an individual has a debt-to-income ratio above the suggested 30 percent and has less than three month's emergency saving funds, the individual's financial vulnerability score equals 2. Therefore, such an individual is considered highly vulnerable, given that the individual has failed in both financial vulnerability indicators.

## HYPOTHESIS AND THEORETICAL FRAMEWORK

### Theoretical framework

From the literature and Table 1 above, financial behaviour as the factor that affects FRT in the consumption of investment products in Malaysian market is not available. However, in global market, Rabbani et al. (2020) and Naqvi et al. (2020) proved that financial behaviour gives an impact on FRT in investment products consumption. Therefore, this study intends to suggest the conceptual framework of financial behaviour as the factor that affects FRT in an investment product. For that purpose, this study comes out with the theoretical framework for the variables involved as in Figure 1 below. In this study, financial behaviour serves as the independent variable. Whereas, FRT serves as the dependent variable, in this investment decision study.



**Figure 1.** Theoretical framework for the influence of financial behaviour on FRT in investment decision

### The link between financial behaviour and financial risk tolerance

Financial satisfaction is correlated with individuals' behavioural traits. For instance, Aboagye and Jung (2018) reported low satisfaction in the overall financial situation amongst households with student loan debts and homeowners with mortgage loans. The study also revealed that positive financial behaviours such as having savings in an emergency fund as well as no difficulty with monthly bill payments, and high-risk tolerance explain high financial satisfaction. On the other hand, Çera et al. (2021) studied individuals' financial capability and concluded that individuals' financial capability increases with the increase in financial behaviour, financial knowledge, and promotion of their inclusion in financial services.

Rabbani et al. (2020) and Naqvi et al. (2020) concluded the influence of behavioural traits on FRT in the consumption of investment products. Rabbani et al. (2020) suggested that sensation seeking positively correlates with FRT. Meanwhile, the external locus of control orientation is found to explain low level of FRT in the retirement portfolio. In this regard, Naqvi et al. (2020) unveiled that sensation seeking, self-esteem, and personality influence FRT significantly in retail investment. Therefore, the hypothesis below is proposed:

*Hypothesis:* Financial behaviour positively relates to financial risk tolerance in investment decisions in Malaysia.

## METHODOLOGY

The methodology applied in this study is the library search and analysis of the documents obtained from the fields of financial behaviour, financial risk tolerance, and financial products available in financial market with heavier attention given to investment products. From 80 journals initially found, further selection was taken place to choose only relevant journals for the subject discussed. From this selection, this study utilised 58 references from five recent years except for the underpinned theory in this study. Online material from journals was included in the library search. Online databases such as Science Direct, Google Scholar, and conference papers were used as references. For the systematic search, the words financial behaviour, financial risk tolerance, financial market participation, economy, financial product, and investment were used. These keywords were used to find the relations between variables in economic and financial issues studied by previous scholars for analytical and critical analysis in order to come out with the proposed conceptual framework. It is acknowledged that other keywords may be relevant too, but this study believed that the keywords used are enough for the purpose of this study.

## CONCLUSION

To conclude, this conceptual paper proposes a theoretical framework to discuss the influence of financial behaviour on FRT in an investment decision. The combination of these two variables will give the opportunities for researchers as well as policymakers to further explore their contributions in the area of investment and to deal with new money and fiscal policy based on risk tolerance, as we are now in pandemic to endemic transition phase. Financial behaviour has been seen as a mechanism that financial practitioners can consider to assess potential investors' participation in investment schemes to encourage the development of investment industry, but scientific evidence is required to prove this hypothesis.

Like other studies, this conceptual paper is also subjected to its limitation. Since this paper is conceptual, thus no data were collected to generalise the conclusion obtained. However, the authors are confident that we have proposed a relevant recommendation concerning studies in the investment field. Thus, for future study, this study suggests data collection conclude the relation between financial behaviour with FRT in investment decision making. The advantage of utilising financial behaviour and FRT parameters as the measurements is these measurements can be constructed quantitatively. Quantitative analysis is well-known for its precision in its results. On the other hand, there are also disadvantages to these tools. For psychological measurements like financial behaviour and FRT, respondents tend to be inconsistent in their

feeling. They might answer yes today, but their answer might change next month. However, we can maximise the precision by using an appropriate Likert scale for multiple-choice questionnaires in data collection.

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## CONFLICT OF INTEREST

The authors, as noted, certify that they have NO affiliations with or involvement in any organisation or agency with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, jobs, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, expertise or beliefs) in the subject matter or materials addressed in this manuscript.

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