

## Factors that Influence Investment Decisions with Demographic Variables as Moderators: A Case Study in Kota Kinabalu

Caroline Geetha<sup>1\*</sup> and Florence Leo<sup>2</sup>

<sup>1</sup>Faculty of Business, Economics and Accounting, Universiti Malaysia Sabah, Kota Kinabalu, Sabah, Malaysia

<sup>2</sup>Graduate School, UNITAR International University (Sabah Division), Kota Kinabalu, Sabah, Malaysia

\*Corresponding author's email:  
caroline@ums.edu.my

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### ABSTRACT

*The study aims to identify the factors that influence the risk taking behaviour in investment with demographic variables as the moderating variables. The dependent variable is the risk taking behaviour meanwhile the independent variables are security, awareness, opinion, benefit, duration and hedging. The analysis begins with the profile of the respondent. Around 250 respondents answered the questionnaire. The reliability and the validity of the questionnaire were tested. The reliability was tested using the Cronbach Alpha meantime the validity was tested using the factor analysis. This is followed by the correlation and regression. The moderating variables like age, gender marital status and income were used. The result revealed that other than opinion all other variables were found to be significant at 5 per cent significance level. Similarly all the demographic variables are also found to have a moderating effect with the risk taking behaviour.*

### INTRODUCTION

Investment refers to the conversion of funds to asset in order to increase income or growth in value of asset over a given period of time. Investment may be defined as "employment of funds made in the expectation of some positive rate of return" (Rao & Chalam, 2013). Some individuals find investing exciting because they can participate in the decision making process and see the results of their choices. Not all investment will be profitable.

Thus investors must learn to make the correct investment decision to minimize the losses or adversary effect. The correct decision in investment should be made over a period of time (duration) involving diversified portfolios to gain positive returns. Investment is a serious issue because it has a great influence on the investor's standard of living.

Even if an individual does not invest in stocks, securities and commodity but as long as they are in a pension plan, employee provident fund like EPF, purchased a life insurance or a home, a savings account in a bank, they are actively involved in investments. Each of these investments has potential return and the risk involved. Since the future is uncertain, how much risk you are willing to bear determines the amount of risk. (Kabra, Mishra, & Dash, 2010).

Before investing an investor should specify his or her goals because goals can determine the amount of risk we are willing to take. Goals can also determine the mechanics of investing. Since today the field of investment is globalized and even more dynamic, the amount of information available to the investor overwhelming and continues to grow. The key to a successful financial planning is to keep a large amount of savings and invest it intelligently by in a longer period of time (duration), the turnover rate should exceed the inflation rate (hedging) and also cover taxes (benefits) as well as to allow the investor to earn enough to compensate the risks taken. Unfortunately saving instrument like savings account, money at low interest rates and market accounts do not contribute significantly to high returns but high interest rate comes from stocks, bonds and other types of investment in assets such as real estates. All these investments are not free from risk, thus one should try to understand what kind of risks they encounter to prepare themselves from an action to be taken.

Risk can also be associated to lack of awareness on how stocks works, like buying when the price of stock is low and selling when the price of stock is high. In order to understand this you need to have enough financial knowledge (awareness). Financial knowledge increases awareness. When awareness increases, the amount of risk the investor is willing to take will be high. Many researchers claimed that awareness also comes with age, gender, marital status and income. Older generation has higher level of awareness therefore they are willing to take higher risk compared to the younger age group. As for gender, women are more risk adverse compared to man because the financial knowledge obtained by man is greater compared to women. Researchers also claim that those who are married are risk adverse investors because they are worried that a wrong investment will have a negative effect on the family. Therefore they take time to find information before making an investment. Lastly, higher income individuals are usually regarded as educated investors, therefore they are willing to take higher risk compared to low income individuals.

There are some researchers that claim irrespective of the age, gender, occupation and educational level, individuals save for future. The research claimed that the desire to save because of Safety and Liquidity was the utmost motive to save for old age (security). Thus the older an investor gets, his risk tolerance might be low because lack of security. The risk tolerance of the investors is also closely related to the suggestion they take from their family, friends and as well as peers (opinion). Seeking advice based on experience from friends, family and peers can help to overcome the fear plus increases the confidence of investing. This is because the risk tolerance increases.

Financial risk tolerance, defined as the maximum amount of uncertainty that someone is willing to accept when making a financial decision, depends on an individual's

economic and social life. Thus assessing financial risk tolerance in practice tends to be very difficult due to its subjective nature. Demographic factors such as gender, age, marital status and income influences a person's level of risk taking in daily money matters (Grable, 2000, p. 626). This is supported by Yao, Hanna, and Lindamood (2004). Financial risk tolerance influences household portfolio decisions and the growth of household wealth because investors who tolerate higher risk tend to obtain higher returns over the long run. Households with risk resistance are unlikely to invest in stocks. This might make them inadequate for retirement and reaching other goals. Thus other than security, opinion, awareness, hedging, benefits and duration, investment decision making actually earlier influences the perception of risk taking behaviour of investors which is also influenced by the demographic variables like age, gender, marital status as well as income.

### **BACKGROUND OF THE STUDY**

Empirical research claims that security, opinion, awareness, hedging, benefits and duration are the factors that can influence investment decisions through risk tolerance. It is found that demographic characteristics could be used as a moderating factor in influencing the financial risk tolerance that eventually changes the perception of investors in investing looks into a person's attitude towards accepting risk. (Ahmad, Sawan, Ali & Tabasum. 2011. p.1880) It is an important concept that has implications for both financial service providers and consumers. For the latter, risk tolerance is one factor which may determine the appropriate composition of assets in a portfolio which is optimal in terms of risk and return relative to the needs of the individual. (Hallahan, Faff & Mc Kenzie, 2004). No doubt there are several factors like security, hedging, opinion, duration, benefits and awareness that can influence the perception of an investor to invest but it also depends on the risk taking tolerance of the investor which can be moderated by the

demographic variables showing the influence of personal characteristics.

### **RESEARCH PROBLEM**

It has been shown that the factors that can influence the investment decision making process are security, opinion of the peers, financial knowledge (awareness), hedging that ensures the return on investment is greater than inflation and it is able to cover tax, benefits in terms of tax exemption or capital growth and the duration of the investment to obtained a higher potential return. All these factors actually influence the amount of risk the investor is willing to take before an investment decision is made. Since the previous researchers only looked into gender, the eight factors used to measure investment decisions are further extended and moderated using age, gender, income and marital status which represents the demographic variables. Therefore the study is conducted to address how the factors that influence investment decision moderated by demographic characteristics affects the financial risk tolerance and eventually the perception of the investors in the decision making process.

### **RESEARCH OBJECTIVES**

The study aims to determine the factors that can influence the risk taking behaviour which will eventually lead the investors to invest with the demographic variables as a moderator in Kota Kinabalu, Sabah.

### **RESEARCH QUESTIONS**

Based on the research objectives mentioned above, the researcher has come out with the research questions which are as follows:-  
'What are the factors that can influence the risk taking behaviour that lead the investors to invest using the demographic variables as a moderator in Kota Kinabalu, Sabah?'

### **SIGNIFICANCE OF THE STUDY**

This study aims to fill the knowledge gap, theoretically. Previous studies aimed at identifying the factors that can influence investors' decision making. The moderating factors used were limited to gender and age. In this study, the factors identified based on literature is linked with the risk acceptance behaviour before it is said to have influenced the investors' decision making process. Moreover the number of demographic variables used as a moderator was extended to gender, age, marital status and income. This is because different demographic characteristics have different economic expectations between levels of risk tolerance, like in our culture men should take greater risks than women. Similarly older individuals have been linked to lower levels of risk tolerance. Marital status also influences risk tolerance, singles have higher risk tolerance especially those with professional employment. This is said to be associated with educational attainment and income.(Grable, 2000, p.625)

Practically, it is expected to be useful to investment managers in three specific ways. First, this research would add a measure of objectivity to a decision making process since investment decision is considered to be subjective. Second, this study would contribute to the general knowledge in the field of family financial management by providing a multivariate analysis of the risk-tolerance variable; and finally, this research contributes to the on-going debate regarding the effectiveness of using demographics for differentiating and classifying investors into different risk-tolerance categories (Grable, 2000, p.626)

### **LITERATURE REVIEW**

Research in the areas of judgement and decision making (JDM) and behavioural economics suggests that there may be a number of behavioural factors that

influence the investment making decision. Findings from previous JDM and behavioural economics research offer a new perspective on the motivations underpinning the investment decisions and it may help generate strategies for overcoming some cognitive and emotional factors. In this JDM and behavioural economics, the claiming behaviour should be understood well.

The claiming behaviour in the process of decision making for investment involves the feeling of security, influence of external environment like the opinions of family, friends and peers, the awareness on the knowledge of finance, the benefits obtained after investment, the duration each investment needs to receive positive returns and finally hedging to make sure that the returns exceeds the explicit and the implicit cost of doing investment. The claiming behaviour influences the risk tolerance level of the investors through expectation. This is known as query theory in JDM.

### **DEPENDENT VARIABLE**

Risk tolerance is crucial in achieving long term financial goals. If the tolerance is based on a rational, informed evaluation, then the portfolio would be suitable; otherwise, it might lead to problems. Households with low risk tolerance might experience losses of opportunity from investing in stocks. Households with high risk tolerance in short term investing may incur unwanted losses in wealth. An individual's risk tolerance is related to his/her household situation, lifecycle stage, and subjective factors. Demographic characteristics are found to have significant effects on financial risk tolerance (Yao & Hanna, 2005). Risk tolerance can be determined through consultation with affected parties or by assessing investors' response or reaction to varying levels of risk exposure. Risk tolerance may change over time as new information and outcomes become available or as societal expectations evolve (Seetharaman, Niranjana, Patwa, & Kejriwal, 2017).

## **INDEPENDENT VARIABLES AND ITS RELATIONSHIP WITH RISK TAKING BEHAVIOUR**

### **Security**

Basically, this factor moves around the future safety. Under this component, the factors related to future needs which may be any emergency or known. This factor is closely related to many demographic variables. Age is in line with security. Older generation needs to feel secure in the type of investment made because their risk tolerance is low and their intention to invest is also low because fear of losing their savings. This is in line with the life cycle hypothesis. A woman also more secure in nature and does not want to take any risk that can cause uncertainty in the future. This is in contrast with men who are great risk takers. Similarly when an individual is married or has dependence, they fear to invest, their risk tolerance is low unlike those who single. In addition, those who have a higher income, are willing to take the risk because the portion of income they would lose would be relatively low compared to those who earn lower income.

### **Opinion**

Investors who are intelligent and risk adverse always want to take suggestions from their peers, financial experts and any share brokers. Women have the tendency to refer to their family and friends before making their investment to avoid risk. This is also a similar behaviour for older generation, those who are married and also those who earn low incomes.

### **Awareness**

Awareness is closely related to financial knowledge. Younger generation are more exposed to financial knowledge compared to older generation. Men are financially more literate compared to the women. Higher income group as well as single individuals have higher awareness compared to the lower income group and married individuals.

### **Hedging**

Hedging is closely related to the precaution of risk. The investors feel that before making any decisions about investment, it is good to take suggestions from experts of this field and always go for larger duration investment, since this option gives more time to evaluate investment. Older generation, women, lower income and married individuals are more risk adverse, therefore they prefer to invest in financial instrument that provides steady returns but for a longer period of time as long as the risk is low.

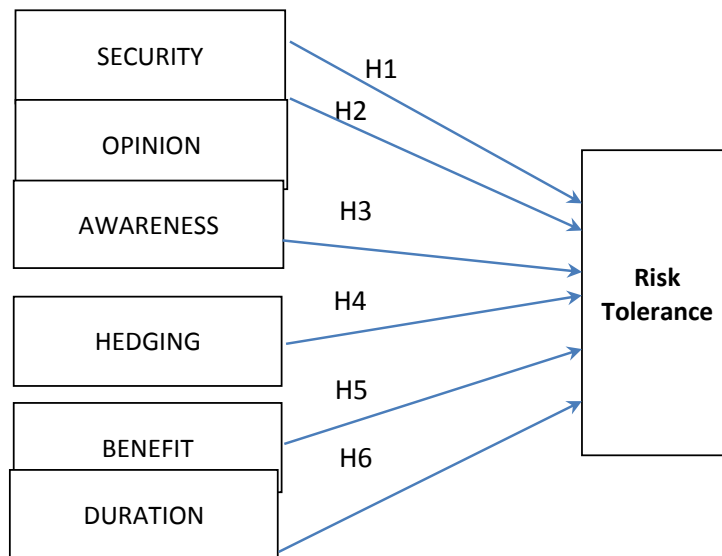
### **Benefits**

There are various benefits of investment which differs from person to person, some would like to invest to exempt from tax, someone invest for capital growth and there are some who would like to be protected from inflation and many more other reasons. Older generation, women, lower income and married individuals are more risk adverse, therefore they prefer to invest in financial instrument that provides more benefits.

### **Duration**

Duration refers to the time duration of investment. Respondents were asked to indicate the time duration they devote for the investment activities. Thus there are many different financial plans with investment options. Older generation, women, lower income and married individuals are more risk adverse, therefore they prefer to invest in financial instrument that provides steady returns but for a longer period of time as long as the risk is low.

**RESEARCH FRAMEWORK**



**Figure 2** Theoretical framework for the hierarchical regression

Sources: Modified and Adapted from (Kabra, Mishra, & Dash, 2010).

**STATEMENT OF HYPOTHESIS**

Below are the hypotheses of the study:

H<sub>0</sub> – Security does not influence investor’s risk tolerance in making investment decisions.

H<sub>1</sub> – Security does have an effect on investor’s risk tolerance in making investment decisions.

H<sub>0</sub> – Opinion does not have an effect on investor’s risk tolerance in making investment decisions.

H<sub>2</sub> – Opinion does have an effect on investor’s risk tolerance in making investment decisions.

H<sub>0</sub> – Awareness does not have an effect on investor’s risk tolerance in making investment decisions.

H<sub>3</sub> – Awareness does have an effect on investor’s risk tolerance in making investment decisions.

H<sub>0</sub> – Hedging does not have an effect on investor’s risk tolerance in making investment decisions.

H<sub>4</sub> – Hedging does have an effect on investor’s risk tolerance in making investment decisions.

H<sub>0</sub> – Benefit does not have an effect on investor’s risk tolerance in making investment decisions.

H<sub>5</sub> – Benefit does have an effect on investor’s risk tolerance in making investment decisions.

H<sub>0</sub> – Duration does not have an effect on investor’s risk tolerance in making investment decisions.

H<sub>6</sub> – Duration does have an effect on investor’s risk tolerance in making investment decisions.

**METHODOLOGY**

**Research Design**

The study is quantitative, using the survey research method. Based on the previous research a questionnaire was constructed to measure the influence of security, opinion, awareness, benefit and duration towards the risk tolerance behaviour of an individual that



can eventually lead to the decision to invest. The study is also extended by including demographic variables like age, gender, marital status and income as moderating variables that can influence the influence of the independent variables with the dependent. After the pilot testing, the questionnaire was administered to a group of people whom age is more than 22 years. Here a minimum age of 22 years old is used since individual are expected to work after the age of 22. Initially, the data is analysed using descriptive analysis by reporting the profile of the respondents, and the central tendency of all the variables measured in likert scale. This is followed by the standard hierarchical regression to test the hypotheses of the study.

### Sampling

The respondent chosen for this study are investors. They are regular investors. They invest in small amounts but regularly. The sample chosen based on a certain sampling method. Only investors who invest regularly even at a small amount, which involves non-probability purposive sampling was chosen.

This means investors of a particular group are purposefully sought after.

### Measurement of Variables/Instrumentation

A three pages questionnaire that consists of six subscales was developed. In the first subscale, demographic information such as age, gender, marital status and income were sought. In the remaining subscale, questions were adapted from similar instruments reported in the literature review of previous researchers to measure the risk tolerance. The questions investigated the security, the opinion, awareness, benefit, hedging and duration using likert scale 1 to 5. Similarly the risk tolerance and the decision to invest are also measured with the same Likert Scale where 1 stands for Strongly Disagree, 2 represents Disagree, 3 is Neither Agree nor Disagree, 4 represents Agree and 5 is Strongly Agree.

**Table 1** Questions used for security

I invest to meet my family needs in the future
I invest to meet emergency needs
I invest to live a safe and secure life
Capital growth is the reason for my investment

Sources: Modified and Adapted from (Kabra, Mishra, & Dash, 2010).

**Table 2** Questions for opinions

I take suggestion from peers
I like to invest in more than 5 years
I take suggestions from relatives before investment

Sources: Modified and Adapted from (Kabra, Mishra, & Dash, 2010).

**Table 3** Questions for awareness

I have good knowledge on investment plans
I have good knowledge on financial planning

Sources: Modified and Adapted from (Kabra, Mishra, & Dash, 2010).

**Table 4 Questions for hedging**

Protection from inflation is the reason for investment
I like to invest in more than 5 years
I take suggestion from financial advisors before investment

Sources: Modified and Adapted from (Kabra, Mishra, & Dash, 2010).

**Table 5 Questions for duration**

I like to invest in less than 1 year investment
I like to invest more than 1 year of investment

Sources: Modified and Adapted from (Kabra, Mishra, & Dash, 2010).

**Table 6 Questions for benefits**

I invest to take advantage of tax benefits
Risk coverage is the reason for investing
Capital growth is reason for investing

Sources: Modified and Adapted from (Kabra, Mishra, & Dash, 2010).

**Table 7 Questions for risk tolerance**

I have risk tolerance towards my investment decisions
My reactions towards losses are normal
My investment holding periods are spread over long span of time
When I think of the word "risk", the word OPPORTUNITY comes to my mind first
I prefer invest in high risk high return investment rather than low risk low return investment
I plan to reinvest all income with the income generated from my portfolio
Over the next few years, I expect my rate of savings will probably stay the same
Generating current income from my portfolio is not important

Sources: Modified and adapted from Ali & Tariq, 2013; (Ang, Chuah, Kui, Soo, & Wong, 2016); and LPL Financial Services, 2018.

### Data Collection Procedure

Preliminary analysis of the pilot data was conducted on a small group. The analysis revealed that those completed the survey form was generally happy with the questions asked but minor changes were made to improve clarity. The questionnaires were distributed through email.

### Techniques Of Data Analysis

The data collected from the survey was scored and entered in the computer for analysis by the SPSS (Version 22) Package. Some preliminary results relating to the sample characteristics, the reliability of the questionnaire were reported in this section.

The analysis begins with the reliability test. The Cronbach Alpha is reported to show the reliability of the questionnaire in answering the objective of the study. If the value of the Cronbach Alpha is greater than 0.6, than the instrument used is reliable. This is followed by the descriptive analysis that reports the profile of the respondents. Descriptive Analysis on the central tendency value is also shown. A correlation analysis is conducted to find the existence of multicollinearity between the independent variables. Finally multiple regression analysis was carried out to identify the influence of the factors (security, opinion, hedging, awareness, benefits and duration) on the risk tolerance moderated by the demographic variables.



## RESULTS AND DISCUSSION

### Demographic Profile of the Repondents

The questionnaire was made online and the data was also collected by distributing the forms personally. Out of the 260 questionnaire forms distributed, 250 forms were returned and properly filled; representing a response rate of 96%, which is considered an acceptable level of response rate in the type of research. Details of respondents such as Age, Gender, Marital Status, and Income are depicted in Table 8.

**Table 8** Details of respondents

		Frequency	Percentage (%)
<b>Age</b>	22 – 28	61	24.4
	28 – 40	53	21.2
	40 – 60	136	54.4
<b>Gender</b>	Male	86	34.4
	Female	164	65.6
<b>Marital Status</b>	Unmarried	58	23.2
	Married with children	55	22.0
	Married without children	83	33.2
	Divorced	27	10.8
	Widow/ Widower	27	10.8
<b>Income level (per annum)</b>	Below RM50,000	86	34.4
	RM50,001 – RM100,000	110	44
	RM150,001 – RM200,000	27	10.8
	RM200,001 and above	27	10.8

Based on the Table 8, the respondents' profile which had been analysed was based on age, gender, marital status, and income level (per annum). Based on the frequency distribution analysis, most of the respondents comes under the age of 40 – 60 years old

which consists of 136 respondents (54.4%). 61 respondents' age 22 – 28 years old and 53 respondents' age 28 – 40 years old which represent 24.4% and 21.2% respectively. 65.6% out of 250 respondents are female and 34.4% are male. 58 respondents (23.2%) are still single, 55 respondents (22%) are married with children, 83 respondents (33.2%) are married without children, 27 respondents (10.8%) respectively are divorced and widow/widower. As for respondents' income level per annum, 86 (34.4%) of them are earning below RM50,000, 110 respondents (44%) are earning between RM50,001 to RM100,000, 27 respondents (10.8%) are earning between RM150,001 to RM200,000, and another 27 respondents (10.8%) are earning RM200,001 and above.

### Construct Validity: Factor Analysis

**Table 9** KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.660
Bartlett's Test of Sphericity	Approx. Chi-Square	240.012
	df	3
	Sig.	.000

Table 9 is known as the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. The KMO varies between 0 and 1. A value of 0 indicates that the sum of partial correlations is large relative to the sum of correlations, indicating diffusion in the pattern of correlations (hence, factor analysis is likely to be appropriate). A value close to 1 indicates that patterns of correlations are relatively compact and so factor analysis should yield distinct and reliable factors. Kaiser (1974) recommends accepting values greater than 0.5 as acceptable. Furthermore, values between 0.5 – 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb (Field, 2005). For these data, the value is 0.660, which falls into the range of mediocre which means that factor analysis is appropriate for these data.

Bartlett’s measure tests the null hypothesis that the original correlation matrix is an identity matrix. For factor analysis to work we need some the relationships between variables and if the R-matrix were an identity matrix, then all correlation coefficients would be zero. Therefore, this significant need to be tested (e.g. have significance less than 0.05) (Field, 2005). For these data, Bartlett’s test is highly significant ( $p < 0.01$ ), and therefore factor analysis is appropriate.

### Reliability Analysis

To assess the reliability of the instruments, the Cronbach alpha coefficients for the total questionnaire and the eight subscales were calculated and reported in Table 4.3 and Table 4.4. The Cronbach alpha is the most widely used index for determining internal consistency. It has been generally accepted that in the early stages of the research on hypothesized measure of construct, reliabilities of 0.50 or higher is needed, while for widely used scales, the reliabilities should not be below 0.6.

**Table 10 Reliability statistics**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.718	.711	8

**Table 11 Reliability statistics**

Variables	Number of Items	Cronbach's alpha
Security	4	0.709
Opinion	3	0.776
Awareness	2	0.848
Hedging	3	0.746
Duration	2	0.861
Benefits	3	0.745
Risk Tolerance	8	0.783
Investment Decision	6	0.757

In this study, the Cronbach’s Alpha values for all of the measured variables are reliable ( $\beta$  range = 0.7 to 0.9). Therefore, all the eight items are reliable and qualified for further analysis.

### Normality Assessment

**Table 12 Descriptive statistics**

	N	Mean	Std. Deviation
Security	250	4.46	.426
Opinion	250	11.66	1.239
Awareness	250	7.97	1.246
Hedging	250	12.05	1.619
Duration	250	6.54	.683
Benefits	250	13.06	1.548
Risk_tolerance	250	28.60	3.393
Investment_decisions	250	23.22	1.122
Valid N (listwise)	250		

Table 12 shows the mean, standard deviation and number of respondents (N) who participated in the survey given. For these mean data, we can conclude that the risk tolerance has the highest mean (28.60) and is the most important factor that influences the investors’ investment decisions. The lowest mean (4.46) goes to security which means that it is the least important factor that influences the investors’ investment decisions, or it can be said that it does not affect much on investors’ investment decision making.

### Pearson Correlation Analysis

**Table 13 Pearson Correlation Analysis**

		Risk_tolerance
Security	Pearson Correlation	.119
	Sig. (2-tailed)	.060
	N	250
Opinion	Pearson Correlation	.243**
	Sig. (2-tailed)	.000
	N	250
Awareness	Pearson Correlation	.816**
	Sig. (2-tailed)	.000
	N	250
Hedging	Pearson Correlation	.611**
	Sig. (2-tailed)	.000
	N	250
Duration	Pearson Correlation	.329**
	Sig. (2-tailed)	.000
	N	250
Benefits	Pearson Correlation	.782**
	Sig. (2-tailed)	.000
	N	250
Risk_tolerance	Pearson Correlation	1
	Sig. (2-tailed)	
	N	250
Investment_decisions	Pearson Correlation	-.354**
	Sig. (2-tailed)	.000
	N	250

A correlation matrix is a simple and rectangular array of numbers which gives the correlation coefficients between single variable and every other variable in the investigation (Wan Fauziah & Sulaiman, 2012).

Table 13 indicates the correlation relationship between the independent variables and dependent variable. If the

correlation  $\alpha < 0.05$ , it means that the independent variable has the relationship with the dependent variable. The correlation coefficients analysis above shows that there is a relationship between opinion, awareness, hedging, duration, benefits and risk tolerance among the investors because its sig. (2-tailed) value showed that it has an  $\alpha < 0.05$ . There is also a relationship between the risk tolerance with the investment decisions among investors which has  $\alpha < 0.05$ . Whereas, there is no correlation relationship between the security with the risk tolerance among investors as it has  $\alpha > 0.05$ .

### Regression Analysis

**Table 14 Regression analysis**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.997 <sup>a</sup>	.995	.994	.254

a. Predictors: (Constant), Investment\_decisions, Opinion, Duration, Security, Benefits, Awareness, Hedging

b. Dependent Variable: Risk\_tolerance

The Model Summary table above refers to a multiple regression analysis where the R represents the combination of all variables. It also contains the R-Square and the Adjusted R-Square column. For Multiple Regression, we wished to report or look at the Adjusted R-Square rather than the R-Square. However, both of them measure the proportion of the total variability in the dependent variable that is explained by the independent variables (model). From the above Table 14, we can report that 99% of total variability in risk tolerance is explained by the model (investment decisions, opinion, duration, security, benefits, awareness, and hedging). If there are big discrepancies between the R-Square and the Adjusted R-Square, we can suggest that some of the independent variables that included in the regression model are redundant.

**Table 15 ANOVA Table**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	2850.530	7	407.219	6290.504	.000 <sup>b</sup>
Residual	15.666	242	.065		
Total	2866.196	249			
a. Dependent Variable: Risk_tolerance					
b. Predictors: (Constant), Investment_decisions, Opinion, Duration, Security, Benefits, Awareness, Hedging					

The above ANOVA Table also known as the Statistic F-Test for Multiple Regression Analysis. We applied statistician test because we need to know what is the null and the alternative. The null hypothesis always, for this F-Test in ANOVA table regression, is that the model has no explanatory power, which is the same as saying that all the coefficients on the independent

variables zero. That also the same as saying, none of the independent variables help to predict the dependent variable. In another words, the model is useless. The Significance column shown that the P-Value is 0.000, which is less than 0.01 and it even way less than 0.05. As such, we conclude that there is a very strong evidence to reject the null hypothesis.

**Table 15 Coefficients Table**

Model B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Std. Error	Beta			
1 (Constant)	11.948	.694		17.219	.000
Security	.804	.082	.101	9.791	.000
Opinion	-.012	.021	-.004	-.569	.570
Awareness	3.190	.042	1.172	75.109	.000
Hedging	-1.931	.033	-.921	-58.267	.000
Duration	2.390	.050	.481	47.745	.000
Benefits	.967	.019	.441	52.199	.000
Investment_decisions	-.741	.030	-.245	-24.440	.000
a. Dependent Variable: Risk_tolerance					

The above table tells about the relationship between the independent variables and the dependent variable for the coefficient. From the table, it clearly shows that only the Opinion is not significant as the P-Value is 0.57 which is more than 0.05. As for the other six variables, they are all significant as their P-Value is less than 0.05. In this study, we succeeded to reject the null hypothesis. In another words, we accept the alternative hypothesis and reject the null hypothesis.

$$\text{Risk tolerance} = 0.804 - 0.012\text{Security} + 3.19\text{Opinion} - 1.93\text{Awareness} + 2.39\text{Hedging} + 0.96\text{Duration} - 0.74\text{Benefits}.$$

In general, the coefficient on the independent variables in multiple regression can be explained using the above equation which means, for a 1 unit increase in security decreases risk tolerance by 0.012 unit. 1 unit increase in Opinion increases risk tolerance by 3.19 unit. 1 unit increase in awareness decreases risk tolerance by 1.93 unit. 1 unit increase in hedging will increase risk tolerance by 2.39 units. 1 unit increase in duration will increase risk tolerance by 0.96 unit. 1 unit increase in benefits will decrease risk tolerance by 0.74 units.

## Summary of Hypothesis Testing

**Table 4.16** Result table for the tested Hypothesis

No	Alternative Hypothesis	Findings
1.	Security does have an effect on investor's risk tolerance in making investment decisions.	Accepted
2	Opinion does have an effect on investor's risk tolerance in making investment decisions.	Rejected
3.	Awareness does have an effect on investor's risk tolerance in making investment decisions.	Accepted
4.	Hedging does have an effect on investor's risk tolerance in making investment decisions.	Accepted
5.	Benefit does have an effect on investor's risk tolerance in making investment decisions.	Accepted
6.	Duration does have an effect on investor's risk tolerance in making investment decisions.	Accepted
7.	Risk tolerance does have an effect on the investor's decision to invest.	Accepted
8.	Demographic variables like age, gender, marital status and income does have a moderating effect between the security, opinion, awareness, hedging, benefit and duration with the investor's risk tolerance in making investment decision.	Accepted

The above Table 4.16 shows the results from the tests ran for researchers to decide whether to accept the studies done or to suggest for further research. A researcher's aim in doing a research is to proof that there is a significant effect on the alternative hypothesis towards the null hypothesis, and therefore to reject the null hypothesis and accept the alternative hypothesis.

For the second alternative hypothesis, it was analysed that opinion does not have an effect on investor's risk tolerance in making investment decisions. As such, the null hypothesis is accepted whereas the alternative hypothesis is rejected.

As for the other seven alternative hypotheses, this study concluded that there are significant effect between security, awareness, hedging, benefit, duration, risk tolerance, and demographic variables towards investors' investment decisions. Therefore, researchers concluded that there is enough evidence to reject the null hypothesis and because of that, alternative hypothesis are accepted and null hypothesis is rejected.

## SUMMARY

The researchers followed the two-step procedures using SPSS software to access the validity and reliability of the study. Cronbach's Alpha for measurement of the reliability coefficients for the primary variables was used in this study. For these data, the Cronbach's alpha value was 0.718.

The correlation coefficients analysis indicated the correlation between the independent variables and dependent variable. If the correlation  $\alpha < 0.05$ , it means that the independent variable has the relationship with the dependent variable. The correlation coefficients analysis above shows that there is a relationship between opinion, awareness, hedging, duration, benefits and risk tolerance among the investors because its sig. (2-tailed) value showed that it has an  $\alpha < 0.05$ . There is also a relationship between the risk tolerance with the investment decisions among investors which has  $\alpha < 0.05$ . Whereas, there is no correlation relationship between security with the risk tolerance among investors as it has  $\alpha > 0.05$ . The significance column in the ANOVA table shown that the p-value is 0.000, which less than 0.01 and it even way less than 0.05. As such, it is concluded that there is a very strong evidence to reject the null hypothesis.

## CONCLUSION AND RECOMMENDATION

### Recaptulation of Findings

Cronbach's Alpha for measurement of the reliability coefficients for the primary variables was used in this study. For these data, the Cronbach's alpha value was 0.718. The Cronbach's Alpha values for all of the measured variables were reliable ( $\beta$  range = 0.7 to 0.9). Therefore, all the eight items were qualified for further analysis. For the mean data, it was concluded that the risk tolerance has the highest mean (28.60). This means it is the most important variable that influenced the investors' investment decisions. The lowest mean (4.46) was security, which explained that it does not affect much on investors' investment decision making.

The correlation coefficients analysis shows that there is a relationship between opinion, awareness, hedging, duration, benefits and risk tolerance among the investors because its sig. (2-tailed) value showed that it has an  $\alpha < 0.05$ . There is also a relationship between the risk tolerance with the investment decisions among investors which has  $\alpha < 0.05$ . Whereas, there is no correlation relationship between the security with the risk tolerance among investors as it has  $\alpha > 0.05$ . The significance column in the ANOVA table shown that the p-value is 0.000, which is less than 0.01. As such, it is concluded that there is a very strong evidence to reject the null hypothesis.

### Conclusion

It can be concluded that, security, awareness, hedging, benefit, duration, risk tolerance, and demographic characteristics had significant effect on investors' investment decision making. The opinion from peers and relatives are not the major factors which can influence investors' in making investment decisions. This study tested the tenets of the behavioural finance theory on the factors that influence

investment decisions under conditions of uncertainty. The analysis performed on the data collected appears to give a fairly accurate view of the average investors in Kota Kinabalu, Sabah. The results revealed by the sample of 250 respondents confirm that there seems to be a certain degree of correlation between the factors that behavioural finance theory and previous empirical evidence identify as the influencing factors for the average investors, and the individual behaviour of active investors influenced by the overall trends prevailing at the time of the survey. Despite the limitations stated above, this study provides valuable insight in understanding the relationship between risk tolerance and investment decisions in the context of economy and finance.

This study determined the factors that appear to exercise the greatest effect on individual investor's investment decision making. Firstly, future research should attempt to explain the relative importance of decision variables have for individual investors' investment decision making. Secondly, whether there are homogeneous clusters or groups of variables that form identifiable decision determinants that investors rely upon when making investment decisions. Thirdly, there is a lot of scope of further research in this field of finance. Future researchers could focus more on gathering more information about the background of the respondents and perform a comparative analysis of their background. Moreover, further research could be conducted on the behavioural patterns of respondents, whereby a lot of emphases could be laid upon behavioural finance such as the self-control effect and overconfidence of respondents. Research on this matter could take a more developmental approach to studying how the variables are affected by the life span of the respondents. The research could be strengthened by using the qualitative method of gathering information as well. More statistical tests could also be conducted to get a stronger statistical difference. Finally, a larger



sample could be examined as well as a wider coverage of urban and rural areas of Sabah.

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