Risk Tolerance Level among Working Adults in Kuala Lumpur Malaysia

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This paper examines the relationship between demographic factors such as gender, age, marital status, education level and income with the level of risk tolerance. We use a survey questionnaire from 147 respondents of working adults in Kuala Lumpur. The results show that the respondents prefer to keep/ invest in liquid assets such as savings account, cash in hand and Employment Pension Funds (EPF). This indicates that a majority of them are risk averse with a small percentage of respondents who invest in risky assets like gold, mutual funds/unit trust, real estate. Male respondents owned more risky assets, signifying that they are more risk tolerant than the female respondents. The study also shows that individuals with higher education levels, specifically tertiary education have greater risk tolerance. Results from the regression analysis show that only age and marital status are to be statistically significant to risk tolerance of working adults. This indicates that older respondents tend to be more risk adverse compared to the younger ones while the married respondents seem to be risk takers than the single ones.

Key words: Risk tolerance; Demographic; Financial assets

1. INTRODUCTION

A market with no risk and high returns would make investing the perfect adventure. With 100 per cent ability to foresee investment returns, individuals would not experience risk aversion and be able to conquer the market by investing in various asset classes with perfect market timing to avail the benefits of their investments. Reality however sets in and seizes that idealistic vision of risk and returns. The business world is a battlefield made up of trade-offs and differences in investment making decisions caused by risk aversion that originates from impactful demographic attributes. Risk aversion, as defined by the Oxford Dictionary is the reluctance to undertake risks, in daily life. The science of behavioural finance throughout the years has greatly contributed to the evolution of financial risk tolerance. The study of financial risk tolerance has opened channels to further understand the empowering impact of investors' demographic characteristics and behavioural traits that translate into investment making decisions (Sharma & Vasakarla, 2013).

Demographic attributes, specifically gender, age, educational level, income and marital status significantly expose investors to idiosyncratic risks, delivering brilliant and subpar investors in the financial market (Barber & Odean, 2011). Furthermore, the allocation of assets of households varies according to their level of risk aversion, illustrating that risk is the probability "of occurrence of losses relative to the expected return on any particular investment" (The Economic Times, 2014). Additionally, an aspect of investment making decision is how households fashion their portfolios with age. The level of risk aversion throughout the life cycle of households generally follows a hump shape pattern, illustrating that risk aversion decreases as households age, then shoots up (Milligan, 2004). However, risk aversion is similar for households of all ages although older households are said to be more conservative in the loss frame (Albert & Duffy, 2012). News about retirees suffering from insufficient funds to support themselves during retirement have been soaring the media, signifying that households should adopt a more fearless investment strategy especially when weighing potential losses.

Accepting financial risk is a challenge especially for households with low formal education, as traditionally believed. Formal education is described as primary, secondary and tertiary education. Studies have linked the level of formal education with income, proposing that it is easier for individuals with higher formal education to get a job that generates higher income, hence reducing their level of risk aversion (Duasa and Yusof, 2013). Regardless, Watson and McNaughton (2007) proved that formal education has no significant impact on risk aversion. Therefore, these mixed results call for prudent research in deducing inferences about formal education and risk aversion.

Household income is a driver of investment making decision that distinguishes an exceptional investor from an inferior one. Ceterus peribus, risk aversion is inversely proportional to wealth. Nevertheless, studies have offered a new body of knowledge on the pattern of risk aversion in households with various levels of income (Duasa and Yusof, 2013). Time however has permitted the advancement of technology and network to expose households with low income to explore the fruits of investment. Still, a confidence gap exists between households below and above the average income.

Another demographic attribute that factors investment making decision is marital status of households. Grable (2000) asserted that single households have a greater degree of risk preferences despite Sharma and Vasakarla (2013) who studied that married households are expected to be more fearless in investing to provide a comfortable future for their families. However, marital status is highly correlated to formal education and age of households as old single individuals who have not acquired high formal education may exhibit different levels of risk aversion as to compare with young individuals who have walked down the aisle.

Although there are voluminous studies have been examined the relationship between demographical factors and risk tolerance particularly in developed markets; the results reported are mixed and thus this issue is still open for further empirical examination. Therefore, this research attempts to partially bridge the gaps in the literature by examining the relationship among gender, age, education level, income and marital status with risk tolerance using a survey of working adults in Kuala Lumpur, Malaysia.

2. METHODOLOGY

Questionnaires were distributed to 150 working adults in Kuala Lumpur. There are sixteen questions which are divided into two parts: nine questions inquiring an individual's general information and seven questions that help to measure risk aversion.

There are two approaches applied in the measurement of risk tolerance. The first one is the proportion of risky assets to the total financial assets owned. The investment avenues include risky and non-risky assets. The risky assets included in the questionnaire are mutual funds/ unit trust, bonds/ stocks, gold and real estate while the non-risky assets are cash, savings account, current account, bank fixed deposits, Employee Provident Fund (PEF), retirement fund, insurance, Tabung Haji and others. The analysis is performed by measuring the higher the ratio of risky assets owned to total financial assets, the higher the ratio, the level of risk tolerance.

The second approach is measured from the responses to the questions with the lower the score (1 to 5) of these questions, the greater the risk tolerance of an individual. The second approach is an alternative measure for respondents who do not answer the proportion of income invested in the investment avenues.

Descriptive statistics and correlation analysis are employed as preliminary findings. In addition, the following regression model is constructed to test the association between the dependent variable of risk aversion of individuals and the independent variables.

$$RA_i = \beta_0 + \beta_1 GENDER_i + \beta_2 AGE_i + \beta_3 INCOME_i + \beta_4 EDUCATION_i + \beta_5 STATUS_i + \varepsilon_i \quad (1)$$

Where,

RA_i = Risk aversion of an individual
$GENDER_i$ = Gender of an individual
AGE_i = Age of individuals
$INCOME_i$ = Average annual income of an individual
$EDUCATION_i$ = Highest educational level of an individual
$STATUS_i$ = Marital status of an individual
β_0, β_1, β_2, β_3, β_4 and β_5 = Parameters of the regression
ε = Error term

3. RESULTS AND DISCUSSION

3.1 Descriptive analysis

Total valid questionnaires 147 were returned for the analysis of this study. The respondents were enquired details about their demography as well as their perceived risk behaviour. In addition, the questionnaires incorporated a list of investment avenues and the respondents were asked on their ownership of their financial assets. The financial assets included cash, savings account, current account, bank fixed deposits, Employee Provident Fund (EPF), retirement fund, insurance, Tabung Haji (Pilgrimage fund), mutual funds/unit trust, stocks, bonds, gold, real estate and others. Table 3 demonstrates the percentage of respondents, based on demographic characteristics.

Table 1: Frequency Distribution of Demographic Characteristics

Variable	Respondents	Percentage (%)	Variable	Respondents	Percentage (%)
Gender			**Ethnicity**		
Male	68	46.3	Chinese	43	29.3
Female	79	53.7	Indian	58	39.5
Age			Malay	27	18.4
21-30	26	17.7	Others	19	12.9
31-40	27	18.4	**Religion**		
41-50	50	34.0	Buddhist	9.7	14.3
>50	44	30.0	Hindu	23	15.6
Marital status			Muslim	33	22.4
Married	85	57.8	Christian	62	42.2
Single	55	37.4	Others	8	5.4
Others	7	4.8	**Annual household income**		
Household size			RM <50000	20	13.6
0-2 people	53	36.1	RM50001-100000	61	41.5
3-5 people	75	51.0	RM100001-150000	49	33.3
>5 people	19	12.9	RM150001-200000	9	6.1
Highest education qualification			RM >200000	8	5.4
No formal education	2	1.4	**Sector**		
High school	36	24.5	Private	116	78.9
Graduate	63	42.9	Government	31	21.1
Post graduate	36	24.5			
Others	10	6.8			

As shown above, the percentage of female respondents exceed male respondents by 7.4 per cent. This is parallel with the 10.9 per cent of respondents who are in the education sector. This could be because most educators are said to be women. According to Rich (2014), this profession is largely skewed towards females because they are able to work the same schedules as their children in addition to the flexibility of taking time off to stay at home and return to the profession easily. Secondly, majority of respondents age 41-50 years old, which also explains that 57.8 per cent of the respondents are married. Furthermore, more than half of the respondents come from an average household size of 3-5 people, which corresponds to the percentage of respondents who are married and have a family. The household size of 3-5 people form 51 per cent of the total percentage of respondents, explaining that most couples have only two or three children due to the high cost of living in terms of accommodation, food and transportation in Kuala Lumpur. Studies have proven that residents in Kuala Lumpur spend a booming 31.6 per cent and 29.8 per cent of their monthly income on rent and groceries, respectively (Numbeo, 2015). In addition, this high percentage is discipline with most respondents who are graduates (42.9 per cent) and are married. This could be because most individuals do not fulfil their further studies after getting knot and having children. Dorling (2010) who asserted that the number of female students has been doubled in 20 years. The women who continue their studies are more likely to have children at a later age, compared to their mothers and grandmothers, supports this view.

The table also shows that the respondents with no formal education constitute the lowest percentage of 1.4 per cent. This could be for the reason that most working adults in Kuala Lumpur are not originally from there. It is common for people from other states to further their tertiary education in Kuala Lumpur, given the diverse opportunities there. Many of them continue working and living in there. This explains why 67.4 per cent of the respondents are either graduates or postgraduates, focused on building a stable income and household before walking down the aisle. Table 2 provides a deeper illustration of the percentage of respondents who have kept/ invested in the various financial assets.

Table 2: Ownership of Financial Assets

Financial Assets	Frequency	Percentage (%)
Cash	125	85.03
Savings account	135	91.84
Current account	15	10.20
Bank fixed deposits	78	53.06
Employee Provident Fund (EPF)	107	72.79
Retirement fund	57	38.78
Insurance (Health, life, general, etc.)	106	72.11
Tabung Haji (Pilgrimage fund)	12	8.16
Gold	25	17.01
Mutual funds/ unit trust	37	25.17
Stocks	7	4.76
Bonds	7	4.76
Real estate	79	53.74
Others	3	2.04

As demonstrated in Table 2, the majority of respondents prefer to put their money in liquid assets like savings account, followed by cash and Employee Provident Fund (EPF), are 91.84 per cent, 85.03 per cent and 72.79 per cent, respectively. These assets are said to be of lowest risk compared to other financial assets like mutual funds/unit trust and gold. On the other hand, the percentage invested in other financial assets, Tabung Haji (Pilgrimage fund) and bonds are the least with 2.04 , 8.16 and 4.76 per cent, respectively. As most respondents prioritise keeping in cash and savings account, the proportion of financial asset investments greatly depends on the demography of the respondents, which include gender, age, annual household income, marital status and higher education qualification. It shows the result of risk tolerance experienced by each respondent and the awareness level of investing in high risks asset classes like mutual funds, bonds, gold and real estate.

3.2 Perceived risk behaviour

Table 3: Frequency Distribution of Perceived Risk Behaviour

Level of risk taking		
Level	**Frequency**	**Percentage (%)**
1	3	2.0
2	54	36.7
3	45	30.6
4	38	25.9
5	7	4.8

Notes: Level 1- Level 5 indicates from high-risk tolerance to low risk tolerance.

Table 3 demonstrates that majority of the respondents are risk tolerance, with 54 respondents perceiving their level of risk taking as above average. The frequency distribution follows a histogram, indicating that most of them are comfortable taking financial risk. The survey also showed that only 2 per cent of the respondents are aggressive risk takers while 4.8 per cent of the respondents are not willing to accept financial risk.

The high percentage of respondents willing to take above average amount of risk highly corresponds to the 42.9 per cent of respondents who are graduates and 24.5 per cent who hold postgraduate degrees. Gilliam et al. (2010) asserted that high level of educational attainment is associated with ownership of risky assets. In addition, educational attainment also factors savings and retirement planning behaviour. Individuals are also more inclined to higher degrees of financial literacy, which encourages them to hold emergency funds (Graham et al., 2010). Therefore, this body of literature explains how the majority of respondents with a college degree or higher correlates with a substantially high-risk tolerance.

3.3 Proportion of ownership of risky assets

Table 4: Level of Risk Tolerance of Each Variable

Variable	Mean	Level of risk tolerance
Tolerance * Gender		
Male	0.80	Men are more risk tolerant
Female	0.72	
Tolerance * Age		
> 30 years old	0.73	Adults < 30 years old are more risk tolerant
< 30 years old	0.92	
Tolerance * Education		
> College degree	0.80	Adults with at least a college degree are more risk tolerant
< College degree	0.69	
Tolerance * Income		
> RM100,000	0.77	Adults of an annual household income > RM100,000 are more risk tolerant
< RM100,000	0.75	
Tolerance * Status		
Single and Others	0.73	Married individuals are more risk tolerant
Married	0.79	

Table 4 demonstrates the risk tolerance of 147 respondents based on the proportion of risky assets owned over total assets invested. The risky asset classes include mutual funds/unit trust, bonds, stocks, gold and real estate while others are non-risky asset classes. As shown above, gender has a significant effect on the risk tolerance of an individual. Specifically, the results indicate that the average risk tolerance experienced by male and female working adults is 0.80 and 0.72, respectively. This is parallel with the previous bodies of literature that assert men are more risk tolerant. For instance, Barber and Odean (2001) proved that men are generally overconfident investors, leading to more trading among them. This is because men tend to overvalue their personal assessments of securities' value and are subtly ignorant about the opinions of other investors, leading to strong debate. And debates encourage trading (Barber & Odean, 2001). Despite the growing degree of financial literacy among women, Riley and Chow (1992) stipulated that the lower ownership of risky assets among women could be a function of age, wealth and income too. They generally have lower working-life incomes than the male population, suggesting that they become more risk averse in their investment decisions (Watson & McNaughton, 2007).

As for the relationship between age and ownership of risky financial assets, this study proves that younger individuals ages 30 and below are more risk averse than those older than 30 years old. This result conflicts with several previous studies that proved a positive relationship between age and risk tolerance (Wang, 1997; Ameriks & Zeldes, 2004). On the other hand, this result is justified by the study conducted by Hallahan et al. (2004) who proved that risk tolerance significantly declines with age. This is due to the lower demand of risky growth asset classes among the individuals approaching retirement while younger working adults need to supplement their current income, encouraging them to invest mainly for capital appreciation (Riley & Chow,

1992). Furthermore, since women are proven to have longer life expectancy than men, the gender composition of the aging population highly comprises of women, who generally own lower amounts of risky assets (Watson & McNaughton, 2007). Therefore, a negative relationship between age and risk tolerance is observed.

In addition, the survey results proved that respondents with at least a college degree have a higher risk tolerance for the ownership of risky assets. The risk tolerance of individuals with college degree is greater than the ones without college degree (Table 4), indicating that formal education indeed cultivates financial literacy, which affects individuals' preparation for retirement. Thus, people with substantial financial literacy tend to efficiently plan their finances, which eventually influence their household saving behaviour (Mahdzan & Tabiani, 2013). Also, individuals with greater levels of formal education (graduate and post graduate) are more inclined to understanding widespread investment knowledge, proving a positive relationship between levels of education and ownership of risky assets.

It is proven that individuals with higher income possess more risky assets as individuals earning annual household income of more than RM100,000 experiences a risk tolerance of 0.77, which is more than households that earn an annual income of less than RM100,000. Although the difference is almost insignificant, it is comparable to previous studies that found a positive relationship between income and ownership of risky assets and positive saving. It suggests that working adults generate a higher income from their primary occupation, allowing them to invest their money in risky assets compared to low-income earners (Mahdzan & Tabiani, 2013). A higher disposable income also gives individuals access to investment information and ability to afford a full-service stock brokerage account, permitting them to invest in risky assets like mutual funds/unit trust, bonds, gold and real estate (Lin, 2002). In addition, the wage growth of working adults corresponds to their education level, suggesting that risk tolerance explains a percentage of the return to education (Shaw, 1996). Therefore the research question is answered by proving that a positive relationship between annual household income and risk tolerance.

With a risk tolerance of 0.79, the marital status of the respondents indicates that married adults own a greater degree of risky assets, while adults who are single and with other marital status experience a risk tolerance of 0.73. Although the difference is almost insignificant, this serves as strong evidence against the study that found single adults are more risk tolerant because they have the least responsibility for others and are less pressured by their marital partners (Larkin et al., 2013). On the contrary, the results of this study agree with Watson and McNaughton (2007) who found the risk tolerance increases proportionately to the presence of children due to the added responsibilities borne by parents. However, the difference between the level of risk tolerance between married and unmarried individuals is almost insignificant, proposing that married couples influence each other's investment decisions, altering their ownership of risky assets (Barber & Odean, 2001).

Therefore, these results are consistent with some previous studies that analyse the effect of demographic factors on risk tolerance when making investment decisions. It also supports the results found by (Bashir et al., 2013) that financial literacy is greater among the older, married, highly educated and male individuals.

3.4 OLS regression analysis

Table 5 shows the results from regression analysis. The value of R^2 is 0.095, which means that 9.50% of the total variance in risk tolerance of working adults in Kuala Lumpur has been explained by demographical factors. The low R-squared produced from this data proves the unpredictability of human behaviour and the factors that determine it. The results of a low R-squared justify the unpredictability of human when taking risk and the diverse levels of risk perception. For instance, Sitkin and Weingart (1995) asserted that the finding of the Prospect Theory which is also adopted in this study is consistent with a negative relationship between perceived risk and making risky decisions. This means that when an asset is perceived to be risky, even an individual with high risk tolerance would have the tendency to avoid investing in it. Additionally, individuals would invest in an asset class when they perceive little risk due to the fact that there is barely anything to lose. Therefore, it is deduced that greater levels of situational risk is inversely related to making risky decisions simple because people tend to associate risk with negative outcomes rather than the variability of outcomes (Sitkin & Weingart, 1995). This causes only 9.5 per cent of the risk tolerance explained since risk tolerance is influenced by numerous factors that are outside the radius of this study. There is a significance of F value (P-value 0.014). Therefore, the model is said to fit the data and there is a significant effect of gender, age, income, education level and marital status on the risk tolerance of working adults in Kuala Lumpur.

Table 5: Regression Analysis Results

Model	**Coefficients**		**t**	**Sig.**
	B	Std. Error		
(Constant)	4.724	.659	7.171	0.000
Gender	.318	.206	1.548	.124
Age	-.298	.101	-2.951	.004
Status	-.331	.185	-1.792	.075
Education	.046	.111	.411	.682
Income	-.088	.107	-.825	.411
R^2	0.095			
F	2.961 (0.014)			

Age and marital status are found to be statistically significant to risk tolerance of working adults, at 1 per cent and 10 per cent significance level respectively. The negative sign indicates that older respondent tend to be more risk adverse compared to the younger. Higher the ages lower the risk tolerance. In addition, single person tend to be more risk adverse compared to the married. Sharma and Vasakarla (2013) also found that married households are expected to be more fearless in investing to provide a comfortable future for their families.

4. CONCLUSION

This paper examines the relationship between demographic factors such as gender, age, marital status, education level and income with the level of risk tolerance. We use survey questionnaires from 147 respondents of working adults in Kuala Lumpur. The results show that the respondents prefer to keep/ invest in liquid assets such as savings account, cash in hand and EPF.

This indicates that a majority of them are risk averse with a small percentage of respondents who invest in risky assets like gold, mutual funds/unit trust, real estate.

The high percentage of respondents who are willing to accept financial risk is parallel to those who are graduates while the aggressive risk acceptors comprises of respondents who earn an average annual household income of more than RM 200,000. The opposite is observed with individuals without tertiary education. Also, respondents who are in their 20s and are single are not perceived to be highly risk tolerant. The results also found that in terms of gender, male respondents owned more risky assets, signifying that they are more risk tolerant than the female respondents. The study also shows that individuals with higher education levels specifically tertiary education have greater risk tolerance.

In addition, from the regression analysis only age and marital status are found to be statistically significant to risk tolerance of working adults. The negative sign indicates that older respondents tend to be more risk adverse compared to the younger. In addition, the married respondents seem to be risk taker than the single one. The results of this study have significant implications towards bankers, financial advisors, stock dealers and financial consultants in promoting their products. This would also improve Customer Relationship Management (CRM), boost productivity and lower costs incurred.

REFERENCES

Albert, S. M., & Duffy, J. (2012). Differences in risk aversion between young and older adults. *Neuroscience and Neuroeconomics, 1,* 3-9.

Arano, K., Parker, C., & Terry, R. (2010). Gender-based risk aversion and retirement asset allocation. *Economic Inquiry, 48*(1), 147-155.

Barber, B. M., & Odean, T. (2011). The behavior of individual investors. *Handbook of the Economics of Finance, 2,* 1533-1570.

Gilliam, J., Chatterjee, S., & Grable, J. (2010). Measuring the perception of financial risk tolerance: A tale of two measures. *Journal of Financial Counseling and Planning, 21*(2), 30-43.

Grable, J. E. (2000). Financial risk tolerance and additional factors that affect risk taking in everyday money matters. *Journal of Business and Psychology, 14*(4), 625-630.

Graham, J. F., Stendardi, E. J. S. J., Myers, J. K., & Graham M. J. (2002). Gender differences in investment strategies: An information processing perspective. *International Journal of Bank Marketing, 20*(1), 17-26.

Hallahan, T. A., Faff, R. W., McKenzie, M. D. (2004). An empirical investigation of personal financial risk tolerance. *Financial Services Review, 13,* 57-78.

Jarita Duasa & Selamah Abdullah Yusof. (2013). Determinants of risk tolerance on financial asset ownership: A case of Malaysia. *International Journal of Business and Society, 14*(1), 1-16.

Larkin, C., Lucey, B. M., & Mulholland, M. (2013). Risk tolerance and demographic characteristics: Preliminary Irish evidence. *Financial Services Review, 22*(1), 77.

Lin, Q. (2002). *Consumers' information search when making investment decisions.* Unpublished master's thesis, University of Georgia, Athens, United States.

Mahdzan, N. S., & Tabiani, S. (2013). The impact of financial literacy on individual saving: An exploratory study in the Malaysian context. *Transformation in Business & Economics, 12(*1), 41-55.

Milligan, K. (2004). Life-Cycle Asset Accumulation and Allocation in Canada (Working Paper Series No. 10860). Retrieved from http://www.nber.org/papers/w10860.pdf.

Riley, W. B., & Chow, K. V. (1992). Asset allocation and individual risk aversion. *Financial Analysts Journal, 48(6),* 32-37.

Sharma, M., & Vasakarla, V. (2013). An empirical study of gender differences in risk aversion and overconfidence in investment decision making. *International Journal of Application or Innovation in Engineering & Management, 2*(7), 497-504.

Shaw, K. L. (1996). An empirical analysis of risk aversion and income growth. *Journal of Labor Economics, 14*, 626-653.

Sitkin, S. B., & Weingart, L. R. (1995). Determinants of risky decision-making behavior: A test of the mediating role of risk perceptions and propensity. *The Academy of Management Journal, 38*(6), 1573-1592.

The Economic Times. (2014). *Definition of 'Investment risk'.* Retrieved from http://economictimes.indiatimes.com/definition/Investment-risk.

Wang, H., & Hanna, S. (1997). Does risk tolerance decrease with age? *Financial Counselling and Planning, 8*(2), 27-32.

Watson, J., & McNaughton, M. (2007). Gender differences in risk aversion and expected retirement benefits. *Financial Analysts Journal, 63*(4), 52-62.

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