Determinants of the Risk Tolerance of the Vietnamese Individual Investors

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Abstract: *The risk tolerance of investors is an important factor because it can explain why an investor accepts or not a project. In other words, the risk tolerance towards a project describes the investors' attitude, knowledge, experience, expectation, etc. Vietnam is a developing country, it is splendid for national or foreign investors when investing in projects in Vietnam. However, it is necessary to find out about the Vietnamnese investors and economic environment. Therefore, this research was carried out. It not only determines the factors affecting the risk tolerance of the Vietnamese individual investors in previous models but also investigates the new factors (Investment background knowledge and Family tradition). By using EFA (Exploratory Factor Analysis) method, the result presents that the risk tolerance of the Vietnamese individual investors is affected by 3 elements (Investment background knowledge, Education and Wealth), the factor with the most powerful affection is Investment background knowledge. In addition, the Vietnam Government should create suitable policies to encourage investing.*

Keywords: Risk tolerance, Family tradition, Investment background knowledge, The Vietnamese

1. Introduction

Every investment or financial decisions are considerately made by individual investors based on their own views about themarket. The first thing they interested in is their risk tolerance (or in the other words they are considering between the rate of return and risk of projects), because they always face to threatens as the noise information, economic fluctuations and possible losses to their capital.

The ability of risk tolerance is a major factor for any job related to investment. Risk tolerance of individual investors depends on many factors such as gender, age, education, work. There have been many types of researches investigating this problem and presented many different results about factors determining the risk tolerance of individual investor. In this study, the author based on the risk tolerance model of Rahmawwati et al (2015) in Pakistan to:

- Learn the Vietnamese about their risk tolerance in the field of investment, business and start – up. It is a reference for the Vietnamese to adjust and supplement the necessary elements to improve their ability of risk tolerance in order to have optimal profits.
- Provide organizations and the Government of Vietnam with more references to promulgate more appropriate policies to stimulate increased investment activities.
- Provide foreign organizations with information on investment decisions in Vietnam.

Studies show that men are less risk – averse then women (Rahmawwati et al., 2015), but the background of education shows that heterogeneous results on risk tolerance (Rahmawwati et al. 2015 presents an increased impact; Shah & Bhatt, 2013 presents no impact on risk tolerance). Thus, the results of research on the factor of Education affecting the risk tolerance of individual investors are not consistent. In addition, the tradition in a family and investment background knowledgealso are important factors, because the family with many businessmen also creates an environment for individuals to establish the ability of risk tolerance better and you can find many good chances if investors are equipped with the knowledge of investing well. However, both of the factors have not been investigated in any study yet. Therefore, this research willsupplement two new factors: investment background knowledge and family tradition to fill the research gap.

The research results will provide empirical evidence that (1) education, (2) family tradition, (3) investment background knowledge are the key factors determining the ability of the risk tolerance of the Vietnamese individual investors. From there, local governments, educational institutions and economic organizations will find appropriate solutions for each period affecting these factors to encourage individual investment, thereby developing national economics.

2. Literature Survey

2.1 Overview of researches

Self-reported risk tolerance is a measurement of an individual's willingness to accept risk, making it a valuable tool for financial planners and researchers alike. Prior subjective risk tolerance measures have lacked a rigorous connection to economic theory (Hanna, Gutter and Fan 2001).

Investor confidence and risk tolerance are important concepts that investors are constantly trying to gauge. Yet these concepts are notoriously hard to measure in practice. Most attempts rely on price or return data, but these run into trouble when trying to disentangle whether an observed price change is attributable to a shift in investor confidence or a change in fundamental value (Frootand Connell 2003).

The assessment of financial risk tolerance, as a tool for managing expectations of portfolio volatility, is essential to goal attainment. This study compares two empirical measures of risk tolerance and separately examines the association between these measures of risk tolerance and asset allocation (Gilliam,Chatterjee and Grable 2010).

Financial risk tolerance is one of the key elements that should be considered in making investment decisions for both investment managers and investors. According to its importance, understanding and measuring of financial risk tolerance is not a simple topic. Therefore measuring of financial risk tolerance and determining of the factors that affect financial risk perceptions of individual investors have been interest of research and discussion for long yerars (Anbar and Eker 2010).

Assessing client risk tolerance is one of the most important activities for financial planners. Although risk tolerance evaluation is a key input in the formulation of individualized portfolios, academics and practitioners have not yet paid much attention to this variable (Injodey and Alex 2011).

The traditional perspective of financial theory suggests an implicit rationality on decision making. Historically, researches have revolved around demographic, social and economic heuristics, thus neglecting the emotional, cognitive and behavioral suppositions, related to financial decision making. In this sense, this study aims to evaluate which are the determining factors for risk tolerance (Cavalheiro, Vieira and Ceretta 2012).

Decision making is a complex process that involves risk. All decision made by investors should be concerned about the level of risk they are willing to tolerate. The level of risk they are willing to absorb will lead to their investment strategy they should go for, aggressive, moderate or conservative. For that reason, the factors affecting investors' investment strategy should be taken into consideration (Riffin andAhmad 2012).

Fang, Hanna and Chatterjee (2013) present factors related to differences in risk aversion were analyzed with a measure of risk aversion inferred from answers to a hypothetical income gamble question in the U.S. Health and Retirement Study.Cumulative logistic regressions, controlling for income, age, gender, health status, current job status, and home ownership, showed that Blacks were more risk averse than Whites, but Hispanics born in the United States were not different from Whites. U.S. born respondents in an "other" group, largely Asian, were also not different from Whites. Hispanics and those in the other group who were immigrants were more risk averse than Whites. Racial/ethnic differences found in other risk aversion studies may be partly due to differences in immigrant status.

The reforms era of the nineties in India has led to the proliferation of the financial services industry and the introduction of several financial products and services. The myriad products have also given a lot of options to the investors for channelizing their savings. However, the choice of instruments depends on the demographic and psychographic factors of the individuals as well as the characteristic features of the products viz. risk, return, liquidity, tenure, etc (Shah and Bhatt 2013).

Rahmawwati, Kumar, Kambuaya, Jamil and Muneer (2015) present new evidence on determinants of risk tolerance of individual investors of Pakistan. The main objective of the research is to evaluate the factors that determine the

individuals' decisions. It is essential to understand the factors of risk tolerance and how to manage these factors to enhance the ability of risk tolerance in making investment decisions and increasing economic growth.

Risk aversion is an important factor in explaining many everyday decisions. Thus, one asks which determinants can explain different attitudes towards risk. Several studies show different risk attitudes with respect to gender, age, income, and wealth (e.g. [19]). While these findings are hardly controversial, there is still some uncertainty about the effect of culture on risk tolerance (Weber 2014).

Risk tolerance and financial behaviours are two concepts that should be analysed in order to understand portfolio decisions and market behaviour (Massol and Molines 2015).

Over a decade ago, Grable and Lytton (1999) developed, tested, and published a financial risk-tolerance scale in Financial Services Review that has since been widely used by consumers, financial advisers, and researchers to evaluate a person's willingness to engage in a risky financial behavior (Kuzniak,Rabbani, Heo, Menjivar and Grable 2015).

Understanding financial risk tolerance and determining an individual's willingness and capacity to take on risk is an essential part of financial and indeed economic planning. Increasingly planners draw on the behavioral economics literature. Determining a client's financial risk tolerance is a crucial part of the investment management process. In assessing the risk profile of a system or individual, it is generally seen that there are four main inputs (1) goals, (2) time horizon (3) financial stability, and (4) risk tolerance (Garman & Forgue, 1997). The final input, risk tolerance, is one of a more subjective than objective nature and thus is much more difficult to measure. Although countless attempts have been made to come up with a more precise quantitative measure for this final input, there is no one size fits all approach to measuring risk tolerance and such it has attracted a high level of interest among a range of schools of thought worldwide and merits further insight and investigation (Prasad 2015).

The understanding and application of risk , risk assessment and risk measurement are vital aspects in all financial decisions because individuals are presented with evaluating whether the return from an investment will offer sufficient compensation (Antony 2017).

The purpose of this research is to explore gender differences in financial risk tolerance using a large, nationally representative dataset, the Survey of Consumer Finances. The impact of the explanatory variables in the model is allowed to differ between men and women to decompose gender differences in financial risk tolerance. The results indicate that gender differences in financial risk tolerance are explained by gender differences in the individual determinants of financial risk tolerance, and that the disparity does not result from gender in and of itself (Fisher and Yao 2017).

2.2 Factors of Risk Tolerance

2.2.1 Gender – GT

Gender is the most researched factor that uses to measure the individual risk tolerance. Difference in gender affect the level of risk tolerance as the nature of man is totally different from women in aspect of facing negative consequences. Men have more capacity to tolerate the risk burden as compared to women (Rahmawwati, Kumar, Kambuaya, Jamil and Muneer 2015).

2.2.2 Age – TT

Age is another important factor of investment decisions of individuals. Many researchers support that young people are less risk averse then older people. As individuals age increase, their risk tolerance and need for investment liquidity increases. Young Professionals who have not yet started their families would make heavy investment in stocks. Younger professionals are more willing to take risks in the marketplace than older business owners(Rahmawwati, Kumar, Kambuaya, Jamil and Muneer 2015).

2.2.3 Education – HV

Education of course play a very important role as the professionals say that do not take risk on a matter or on a business deal unless you fully understand on what business of what type and of what extent of risk you are going to take. And education is the only element that can help one understand all. Investor's Education is a determinant of risk tolerance of individual. This factor as a measure of earning power highly correlated with investor's income. Business people are high risk takers it can be taken back to the business students. How acquiring a business degree will affect the tolerance of risk in a person. A researcher's survey result indicates the following (Rahmawwati, Kumar, Kambuaya, Jamil and Muneer 2015).

2.2.4 Wealth – HV

Another factor that causes the investors decisions to change is wealth. Wealth in any form is sacrificed in front of risk in hope of higher gains. More the money, more the willingness to face risk. Rich and wealthy individuals have more capacity to risk tolerance because they have enough sources to get wealth and compensate their losses (Rahmawwati, Kumar, Kambuaya, Jamil and Muneer 2015).

2.2.5 Work – CV

The nature of work is a factor affecting the ability of the risk tolerance of individual investors because the risk in each profession is different. thus, if a person worked as a doctor or an architect, they could only know the possible risk in his/her profession. When they receive an investment plan, their attitude towards the risk in that investment is various, resulting in the differences in the profit they require from the project, maybe not accept.

2.2.6 Family tradition – GD

The family is the closest factor to each individual, greatly affecting the psychological development. According to the Vietnamese tradition, parents have an important position. Men are often the head of the family, the father is the pillar, the expression of the most beautiful cultural personality for children to learn and follow. Womenare the prop, the main

psychological nucleus, the source of fire to warm the love in the family, the endless source of affection for the children. Therefore, a family is the first place to establish a personality for each person. And this also partly affects the risk tolerance of individual investors.

2.2.7 Invesment background knowledge – KT

Knowledge of investment background is as important as any other factor. Because the people with a good knowledge of investment have an attitude towards risk better than the people with a good (or none) knowledge of investment. People with good background knowledge will know how to apply various techniques, tools and methods to find profit in many markets, and people with poor background knowledge will not find opportunities in the risks.

2.3 Conceptual framework

The study is based on research paper published in International Journal of Economics and Financial by Rahmawwati, Kumar, Kambuaya, Jamil and Muneerin2015.
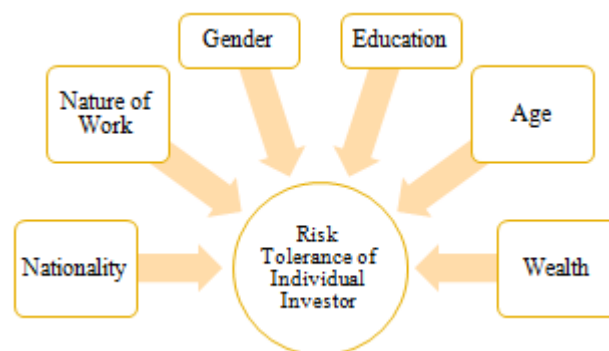
Figure 1: The model of the risk tolerance
Source: Rahmawwati et al, International Journal of Economics and FinancialISSN 2146-4138 Issues, 5(Special Issue) (2015)

2.4 Analytic framework

From the research in the past, seven factors (Gender, Age, Education, Wealth, Work, Family tradition, Investment background knowledge) are selectedto study:

$$f(KN) = f(GT, TT, GD, HV, CV, KT, GC)$$

with KN is a dependent factor; GT, TT, GD, HV, CV, KT and GC are independent factors

- H01: Gender affects significantly in determining the risk tolerance of the Vietnamese individual investors.
- H02: Age affects significantly in determining the risk tolerance of the Vietnamese individual investors.
- H03: Education affects significantly in determining the risk tolerance ofthe Vietnamese individual investors.
- H04: Wealth affects significantly in determining the risk tolerance ofthe Vietnamese individual investors.
- H05: Work affects significantly in determining the risk tolerance ofthe Vietnamese individual investors.
- H06: Family tradition affects significantly in determining the risk tolerance ofthe Vietnamese individual investors.
- H07: Investment background knowledge affects significantly in determining the risk tolerance of the Vietnamese individual investors.

3. Methods

3.1 Research approach

In the study, the observed variables use a Likert scale with 5 levels (with: level 1 = Strongly disagree, level 2 = Disagree, level 3 = Slightly agree, level 4 = Agree and level 5 = Absolutely agree), there are 8 groups of potential scales (with a total of 42 observed variables) determining the risk tolerance of the Vietnamese individual investors. The data is processed by spss tool with techniques such as measuring scales, determining correlation coefficients between independent and dependent variables, constructing and analyzing regression model.

3.2 Sample size

According to Hoang Trong and Chu Nguyen Mong Ngoc (2008), the number of observations (sample size) must be at least 4 to 5 times the number of variables in factor analysis, the sample size is 42 variables (for 8 quantitative factors) x 5 = 210 samples. For multiple regressions, according to Hair et al. (2009), the minimum sample size was calculated by using the formula 50 + 8*m (m is the number of independent factors), this study had 8 independent factors, the minimum sample size is 50 + 8 * 8 = 114 observations. Thus, to achieve the study objective, the minimum sample size for this study is 210 observations. The sample size of the survey is 260 respondents basis on different; Age, Education, Gender, etc in some large cities in Vietnam.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
Gender	260	1.00	2.00	1.6423	.02978	.48025	.231
Age	260	1.00	5.00	1.3346	.03928	.63334	.401
Work	260	1.00	3.00	2.0154	.04719	.76086	.579
Major	260	1.00	11.00	3.9231	.14235	2.29525	5.268
Education level	260	1.00	4.00	3.0385	.02300	.37082	.138
Invested or not	260	1.00	2.00	1.2346	.02633	.42458	.180
Valid N (listwise)	260						

3.3 Research result

Table 2: Reliability statistic

TT	Factor	Accepted variables	Cronbach's Alpha
1	Gender – GT	6	0.764
2	Age – TT	3	0.683
3	Tradition family – GD	5	0.789
4	Education – HV	4	0.833
5	Work – CV	5	0.777
6	Investment background knowledge – KT	5	0.793
7	Wealth – GC	4	0.750
8	Risk tolerance of the Vietnamese individual investors – KN	5	0.797

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.905
Bartlett's Test of Sphericity	Approx. Chi-Square	3753.656
	df	496
	Sig.	.000

In Table 3, KMO = 0.944, satisfying the condition 0.5< KMO <1, showing that EFA (exploratory factor analysis) is suitable for real data. Sig. = 0.000 <0.05 indicates that the variables are related together. Thus, from KMO and Sig, itproves research data is suitable for EFA implementation.

Table 4: Total Variance Explained (extracted)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.666	33.330	33.330	10.666	33.330	33.330	4.079	12.747	12.747
2	2.056	6.425	39.755	2.056	6.425	39.755	3.786	11.831	24.578
3	1.773	5.539	45.295	1.773	5.539	45.295	3.108	9.713	34.292
4	1.451	4.534	49.828	1.451	4.534	49.828	2.817	8.804	43.096
5	1.318	4.120	53.948	1.318	4.120	53.948	2.656	8.299	51.396
6	1.133	3.540	57.488	1.133	3.540	57.488	1.950	6.093	57.488
Extraction Method: Principal Component Analysis									

There are 6 factors affecting the risk tolerance of the Vietnamese individual investors. Implementation of EFA extracted factors with a total variance extracted of 57.488%, meaning that the extracted factors were explained to 57.488% of the risk tolerance of the Vietnamese individual investors, 42.512% is due to Other factors have not been

considered to explain the risk tolerance of the Vietnamese individual investors.

Table 5: Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
CV39	.745					
KT49	.714					
CV40	.657					
GC59	.656					
KT47	.602					
KT50	.557					
HV32		.821				
HV31		.709				
HV30		.708				
HV33		.690				
GT6			.656			
GT1			.591			
GT4			.585			
GT5			.580			
GT3			.573			
GD22				.797		
GD23				.728		
GD21				.715		
GC58					.796	
GC57					.761	
TT13						.794
TT12						.593
Extraction Method: Principal Component Analysis.						
Rotation Method: Varimax with Kaiser Normalization.[a]						
a. Rotation converged in 7 iterations.						

Table 6: Reliability statistic (adjusted)

TT	Factor	Accepted variables	Cronbach's Alpha
1	Investment background knowledge – AKT	6	0.835
2	Education – AHV	4	0.833
3	Gender – AGT	5	0.747
4	Tradition family – AGD	3	0.783
5	Wealth – AGC	2	0.765
6	Age – ATT	2	0.604

From the results obtained in Tables 5 and 6, Cronbach's Alpha of the scales are all over 0.6, the correlation coefficients of the observed variables in the scale are greater than 0.4 and no cases are eliminatingany observed variables make Cronbach's Alpha of this scale larger than the Cronbach's Alpha coefficient. The number of remaining variables is 22.

Table 7: Correlations

	AKT	AHV	AGT	AGD	AGC	ATT	AKN
AKT	1	.469**	.590**	.495**	.319**	.350**	.599**
AHV		1	.471**	.403**	.385**	.367**	.498**
AGT			1	.426**	.312**	.399**	.419**
AGD				1	.210**	.298**	.319**
AGC					1	.375**	.552**
ATT						1	.390**
AKN							1

**. Correlation is significant at the 0.01 level (2-tailed).

Table 8: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.728[a]	.530	.518	.52705	1.937

a. Predictors: (Constant), ATT, AGD, AGC, AGT, AHV, AKT
b. Dependent Variable: AKN

The adjusted R^2 value = 0.518 proves that the factors included in the analysis explained 51.8% of the change. With the value of R^2, it is a completely reliable and accepted value in conditions in the Vietnam environment.

Table 9: ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	79.133	6	13.189	47.479	.000[b]
Residual	70.279	253	.278		
Total	149.412	259			

a. Dependent Variable: AKN
b. Predictors: (Constant), ATT, AGD, AGC, AGT, AHV, AKT

Table 10: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.745	.194		3.842	.000		
AKT	.413	.057	.420	7.215	.000	.548	1.824
AHV	.147	.046	.172	3.214	.001	.647	1.545
AGT	-.030	.057	-.030	-.520	.604	.569	1.757
AGD	-.035	.046	-.040	-.766	.444	.699	1.431
AGC	.229	.033	.340	6.951	.000	.776	1.289
ATT	.063	.042	.076	1.512	.132	.744	1.345

a. Dependent Variable: AKN

Investment background knowledge, Family tradition and Gender are excluded from the regression analysis model because sig > 0.05, the remaining 4 factors in the analysis model are suitable at the sig significance level. < 0.05. The VIF index < 5 and dL = 1.738< 1.937< 4 - dL = 2.262.
Thus, it does not occur the collinear multiplicity and autocorrelation. The multiple regression equation is expressed as follows:
AKN = 0.745 + 0.413AKT + 0.147AHV + 0.229AGC

4. Discussion

Based on the collected, analyzed and synthesized data from 220 samples, the model of the risk tolerance of the Vietnamese individual investors is AKN = 0.745 + 0.413AKT + 0.147AHV + 0.229AGC including four independent variables (Investment background knowledge – AKT, Education - AHV, Wealth - AGC) and a beta coefficient is 0.745 with a significance level of 5%. This model explains 51.8% of the factors affecting the risk tolerance of the Vietnamese individual investors.

From the model, the Vietnamese individual investors' risk tolerance is affected by the constant constant β_0 of 0.745 and the variables of the factors Education, Job, Age, Level wealth. When all the factors equal 0, the Vietnamese individual investor's risk tolerance is equal to 0.745. In order to increase the risk tolerance of individual Vietnamese investors must increase the variables of factors AKT(CV39, CV49, CV40, GC59,KT47, KT50), AHV (HV32, HV31, HV30, HV33)and AGC (GC57, GC58).

The beta coefficients have positive values, proving that the factors have a positive impact (in the same direction) on the risk tolerance of Vietnamese individual investors. In two new factors, only Investment background knowledge affects the risk tolerance of individual Vietnamese investors. It is also thefactor with the most powerful affection in this model. when this factor increases or decreases by 1 unit, the risk tolerance of Vietnamese individual investors will increase by 0.745.

5. Findings and Conclusion

The research result proves that the Vietnamese individual investors' ability to bear risks is affected by factors including Investment background knowledge, Education and Wealth. Thus, the measures that can increase the risk tolerance of the Vietnamese individual investors are:

Regarding Investment background knowledge: From the results, it proves that the people whose job frequently face high risks or the people with a good investment background knowledge, their ability to bear risks is high. Besides, the people whose job are not in the economic field will authorize the third party to invest, the people with a good investment background knowledge have a positive attitude about risk. Moreover, people with high income prefer to invest in long-term projects. Thus, it is necessary to enhance the investment background knowledge for individual investors through classes, seminars, training courses, etc. to raise their awareness about investment.The brokerage companies should consider each client's profile before giving more useful advice to them so that they can reduce risk aversion and increase the proportion of investment. In addition, the Government should improve or propose new policies to more effectively manage information in the market to help the Vietnamese individual investors be more confident when investing.

Regarding Education: From the results, it proves thatgood learners in all subjects will be able to bear high risks, especiallyhighly educated people. The Vietnamese Government should pay more attention to reform the quality of training and educating to suit the present and future development of society. Moreover, the Vietnamese Government should also promulgate policies to encourage learners to raise their Education.

Regarding Wealth: From the results, it proves that the rich prefer to invest because they want to get richer. However, they prefer to invest safely because they want to protect their assets. The Vietnamese Governments can create more secure capital investment channels and increase communication about the benefits of investing to reduce concerns about investors' risk of loss.

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