

# Risk Determinants and Investment Decisions: An Explanatory Study

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## Abstract

This research suggest a general framework to help understating Jordanian investors' disposition towards risk orientation, where risk attributes is a fundamental issue in creating monetary choices. This research examines various financial risk tolerance and investment orientation of investors in Jordan, where this study investigate whether demographic factors influence the financial risk tolerance and investment orientations. The research utilizes a randomly selected sample of 106 individual investors trading in the financial market of Jordan. The findings of the statistical analysis has confirmed that a high average risk orientation is related with higher income level and higher education level. The empirical investigation have had revealed that the demographic variables that have a substantial influence on investor's risk orientations are income level, Age, and education level.

**Keywords:** Risk attributes, financial decisions, investment choices, path analysis, PLS methods

## 1.0 Introduction

Jordan has launched an inclusive general plan to develop its human capital to meet up the vital requirements for its development approach, specifically the improvement of its endowment pool, which includes most cited demographic factors. The plan aims to develop an innovative model to highlights the Jordanian position as a worldwide knowledge economy, at the same time as maintaining the nation's religious, social, and cultural identity. To be totally helpful, strategies and main concerns dealing with individual's increased economic contribution must, in the meantime, afford means to make sure that the wants of families are met. Jordan has a unique social and economic aspects distinguishing it from various states in the MENA region. Moreover, Jordan for a long time is characterized by its young people, high unemployment rates, low participation rate of women in the labor market and an economy constitutes 95% of small and medium enterprises of its investments. However, we should bear in mind that investment opportunities supported by government have become imperative issue for economic growth in this epoch of economic globalization. This study supposed to provide policy makers, financial industry and investment organizations with new imminent into the behavior, intimidations, challenges and requirements of women to enter the business market and seek new investment opportunities.

## 2.0 Risk and Investment Decisions

Risks, in any occurrence, must be assumed in order to make a well-informed decision, which may be significate to the success of an investment. Virlics (2013) argued that acknowledging this awareness of the probable vulnerabilities when making an investment decisions will enable individuals to take a well-versed decisions and withdraw mitigation strategies and emergency. Itys essentials for individuals to assess and consider the risks and influence in any form of investment and specially in financial investments where risk tend to be of a higher levels. As indicated by Virlics (2013) risk is a complicated matter, and it is critical that it is considered, assumed and recognized in investment practices. Investment decision without risk enquiry should not be made and a speculative and experiential investigation and comprehension are just as imperative where this is to be true for the understanding of risks orientations of any investments. Horwitz, (2004) & Lonita (2001) both argued that risk likelihood is to be viable to losses, where experience and information are a prerequisite for the identification of risk that permits the assessment of probability concerns.

### 2.1 Risk orientations and determinants

Risk orientations an investor's manner towards tolerant risk, is a significant perception that has propositions for both economic service providers and users. Droms (1987) stated that risk orientation is an issue which might find out the exact weight of assets in an investment portfolio that is the best possible as to investment risk and return associated with the requirements for any investor. As a result, it is very important to recognize the most essential factors that find out the risk manner in investor's choices. Thus, risk verified the return expected to be obtained by the investors. However, many researchers Allen et al., (2007); Yang & Qiu, (2005); and Doubleday (2002) indicated that investment choices are determined through primal investor usefulness functions, as well as

scrupulous preference for taking risk. Moreover, Schirripa & Tecotzky (2000) opposing that the usual portfolio optimization practice by Markowitz will be boosted by set of shareholder jointly with adverse judgments to risk within an exclusive capable portfolio that preserves the investor's normal risk orientation. Even with its significance in the business sector, still continue some unanswered issues as regards to the decision of risk orientation. As a result, knowing the issues that determine risk manners is very important in considering investors' decisions. According to Rustichini et al. (2005), the behavior of individuals in risky, ambiguous and uncertain situations has psychological components as well.

### *2.2 Consciences and risk-averse type of the decision maker*

Individual risk behavior cannot be clarified by the probable value maximization, but it can be described using the expected utility maximization theory as behavior proposes the risk-averse type of the decision maker. As argued by Montesano (1990) there are two elaborate descriptions of risk aversion which has been have lately proposed for "non-expected utility theories of choice under uncertainty", where the theory refers the measure of risk aversion directly to the risk premium as it consider in calculation the difference between the expected value of the action under consideration and its certainty equivalent) where the second consider risk aversion as a decreasing preference for an increasing risk as indicated by (Chew, et.al 1987).

### *2.3 Diversification, economic activities, and family effect*

As argued by Sharpe (1964) diversification allows the individual investor to mitigate all risk resulting but the one that comes from instability in economic activity, where this sort of risk exists even in perfect conditions. As such most types of risk can be evaded by embracing diversification as the wise choice.

As far as economic activities and influence, the sensitivity of rate of return of an asset to the state and nature of economic activity is relevant in evaluating and addressing its risk. Sharpe (1964) indicated that prices will regulate to achieve a linear relationship between expected rate of return and the extent of economic responsiveness. Stefanoff et. al., (2012) they indicated that individuals that move with economic activity will potentially hit a properly higher expected rate of return on their assets, where any assets that are not altered by the swings in economic activity will accept the pure interest rate. Lintner (1965) concluded in his research while studying the influence and limits of diversification to decrease risks and increase investment performance are indicated 80% of the funds under his study had a higher ratio of mean return to risk than did the overall fund index. Anderson et. al., (2012) they indicated that family devote less capital to long-term investments. Kothari et al. (2002) suggesting that it family oriented investment decisions should be particularly sensitive to family risk aversion. Meier et. al., (1999) concluded in their research that the governance exercised in investment decision processes is determined by partnership role approaches as it is preferred by couples and by accurate capability with respect to the nature and types of investment.

## **3.0 Demographic Factors**

Worldwide, the literature reviewed frequently confirms contradictory outcomes with a number of studies ending with a positive correlation among the risk orientation level and a demographic variable such as age, gender ...etc., while other studies find a negative relationship for that particular variable. Among the most major demographic factors that determine the level of risk orientation are age, gender, and wealth. This part in brief reviews the literature as regards to the factors which may develop the hypotheses tested in the study.

### *3.1 Age*

Spontaneously, Al-Ajmi, (2008) indicated that one would be expecting investment risk orientation to diminish as people become old since the young people have enough time to recover any investment losses and be able to exchange free time with additional efforts to recompense for any portfolio losses. Strong & Taylor, (2001) and Bodie & Crane (1997) stated that the idea that younger investors are more risk takers than old investors in the similar investment situation. When investors become older, they rebalance their investments to be predetermined income securities rather than of common stock. Similarly, various researchers supported facts that risk orientation diminished always with investor's age (Jiankopolos & Bernasek, 2006, and Hallahan et al., 2004). The rationality behind it is that as investors becoming older they mostly face a shorter investment prospect to obtain a positive return on investments. In contrast Grable & Lytton (1999) concluded that old investors demonstrated a high level of risk orientation and also founded that age accounts for a quiet small variant in investment risk orientation levels. Anbar & Eker (2010) concluded the fact there is no considerable correlation between risk orientation and age. Furthermore, Summers et al. (2006) claimed that individuals moved to be risk takers as they grow in age. Feng & Seasholes (2007) and Poterba & Samwick (2001) settled that there is no noteworthy association between of investor's age and the size of assets in investors' portfolios.

### *3.2 Gender*

Earlier studies concerning the issue of gender and its relation with financial risk orientation have been all-embracing and mostly establish that females are more risk averse than males, where the latter preferred more risky assets compared to females (Hallahan et al, 2004; and Al-Ajmi, 2008). Bruce & Johnson (1994) and Jianakoplos & Barnesek (1998) stated that men are risk seeker comparing to women, and also supported the propositions that characteristically females are less risk taker than males as the latter are ready to accept more financial risk. Coleman (2003) concluded that females exhibits a greater risk evasion position as linked to men. Alternatively, females over the age of 40 had a smaller ratio than males in a comparable age group. Furthermore, Olivares et al., (2008) supported the inferences that females be more risk averse than males. Chen & Volpe (2002) proposed that dissimilarities between males and females in their risk positioning possibly will be affected by their financial understanding. In the context of controlled economic conditions and financial risk orientation, Schubert et al. (1999) assist that there is no significant difference between male and female and that depend on the decision frame.

### *3.3 Education*

Education is important issue that is thought to advance a person's aptitude to appraise intrinsic risks to the investment practices and thus a complex financial risk orientation (Sung & Hanna, 1996). Education as a factor is supposed to be greatly associated with income. USA investors with high school diploma have a tendency to keep portfolios deeply biased to less risky assets (Schooley & Worden 1999). In this perspective, Christiansen et al. (2006) asserted that individual who has higher education tend to invest a larger share of their asset in more risky assets. This belief offer an additional provision to the proposition advised in a various studies such as, Haliassos & Bertaut (1995); & Guiso et al. (2003), which all indicated that the level of education is crucial to determine if investors involves in more risky assets investments. Likewise, these studies established that educated individuals are anticipated to be riskier financial investors.

### *3.4 Income and Wealth*

Other factor examined in this study is investor's wealth. In their study regarding wealth and risk tolerant, Grable & Lytton (1999) asserted that wealth is one key contributing factor to investors' risk orientations. The major results in their research illustrate that prosperous are expected to direct a greater share of their investments in risk portfolio, as this is a clear risk seeking behavior. Bowman's (1982) debated that rich investors can easily tolerate losses resulting from a risky assets as their accrued wealth is a reflection their risk seeking behavior. Else, prosperous investors will be extra careful with their wealth. Income and wealth as seen in Cohn, et. al., (1975) are two interconnected elements that are presumed to use a positive association on the desired level of risk

## **4.0 Research Methods**

Understanding investor's financial risk positioning is a significant issue to help in reaching an ideal investment portfolio. However, several international studies has established that risk orientations especially the financial part is correlated to some demographic features which might including income, education and wealth, as well as age and gender. In this context few of these variables, which are assumed to be related to financial risk positioning are still unclear issue consume some considerable examination. Due to this fact, a necessary investigation is needed to consider this issue within the Jordanian setting to examine and validate the association between demographic factors and the financial risk positioning. A positivistic quantitative method was utilized in this research. The study employed a path analysis technique using Partial Least Square (PLS) as recommended by Hair et. al., (2014). The analysis adopted confirmatory factor analysis technique which is aimed at identifying and validating the variables' loading into the proposed latent factor (risk orientation), and to assess the proposed relationships in the research model. Survey questionnaire technique was used to collect data facilitate the investigation and the rationality of the probable research hypotheses. the questionnaire was distributed to random investors operating in Amman exchange market in Jordan, A self-administrated questionnaire was distributed to and collected from a sample of 106 respondents that fits the principles of the testing standards, Bootstrapping techniques were also used to generate 2000 sample of the original one to increase the stabilization of the sample variation and normality, and to further support the acceptance of the results

### *4.1 The hypothesized model of the study*

Based on the previous literature as discussed in the sections above a research model was developed as a set of two latent variables: Risk Attributes (risk averse, diversification, family size, spouse effect, rickety economic status, and conciseness) and Demographic variables (age, educational level, gender, monthly income, and social Status) to test the proposed research hypotheses using PLS methods

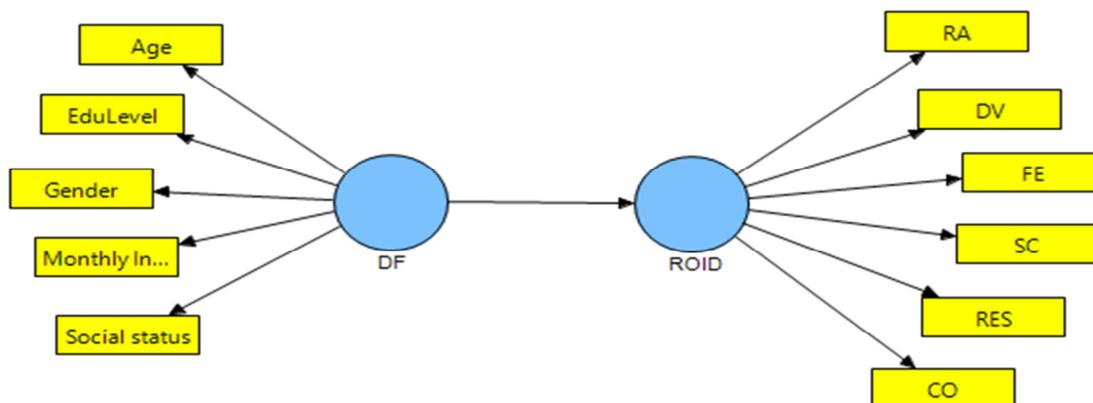


Figure1. Hypothesed Study Model

Research hypotheses:

- H1: All risk is significantly related and can be explained on its latent factor (ROID).
- H11: Risk averse is significantly related and can be explained on the Risk attributes
- H12: Diversification is significantly related and can be explained on Risk attributes
- H13: Family Size is significantly related and can be explained on Risk attributes
- H14: Spouse effect is significantly related and can be explained on Risk attributes
- H15: Rickety economic status is significantly related and can be explained on Risk attributes
- H16: Conciseness is significantly related and can be explained on Risk attributes
- H2: There is significant relationship between the study set of demographic factors and the risk attributes (Gender, Age, EduLevel, Social Status and Monthly Income)

#### 4.2 Sample characteristics

Research sample was analyzed to understand the natural distribution of it items using descriptive and frequency analysis generated by SPSS23. As an absolute number Gender was approximate looking bias (83:17) towards male as the sample showed, but this can be thought normal as to the orientation the sample study in this part of the word where it concentrated heavily on male to provide and to lead in investment decisions, beside that reviewing the latest statistics about the work force gender distribution in Jordan reveled that for the years between 2011 to 2016 the percentage of working female did not exceed 14% of the total workforce population (DOS, 2017), which echoing exactly our sample, and thus the percentage we got is deemed normal. The dominate age group was (30-35) which approximate for half of the research sample and it can be seen as normal since it does represent the active age in the sample work force. Bachelor degree holders as the dominate group in the study sample which constitute more that 66% of the sample, where this finding is also though normal as most individual in the Jordan is seeking university degree to enhance their likelihood in competing in job search. As afar as the social status the married category did lead the sample as it constitute more that 70% of the overall sample, and again this can be seen very normal considering the Jordanian family orientations. An interesting finding revel that most 52% of all sample individuals, involve in financial investments, are working in private organizations. Finally as monthly income is in concern with reference to investment decisions; middle class individuals led the way with approximately 60% of the study sample. More details on the sample characteristics can be seen in table 1.

#### 4.3 Model reliability and validity

Reliability and validity of the proposed study model was realized using the most accredited measure; Cronbach alfa reliability test. As for validity it was achieved by three methods; subject expert review to assure the accuracy of the measurement items as related to the associated literature, and to further the validity robustness, the composite reliability and the average variance explained (AVE) was implemented as indicated by (Hair, et. al, 2010), see table 3.

Table 1. Sample characteristics

Characteristics		Frequency	Percent
Gender	M	88	83.0
	F	18	17.0
Age	25-29	16	15.1
	30-39	55	51.9
	40-49	18	17.0
	above 50	17	16.0
EduLevel	HS	6	5.7
	DP	26	24.5
	BA	70	66.0
	PG	4	3.8
Social Status	S	24	22.6
	M	74	69.8
	D	4	3.8
	W	4	3.8
Position	R	7	6.6
	SE	27	25.5
	GE	17	16.0
	PE	55	51.9
Monthly Income	<500	29	27.4
	500-1000	63	59.4
	>1000	14	13.2

Table 3. Study Model and Submodel Quality Criteria

	AVE*	Composite Reliability	Cronbach's Alpha
DF	0.589	0.805	0.68
ROIM	0.702	0.823	0.59

AVE: Average Variance Explained

## 5.0 Model Data Analysis

### 5.1 Normality

Normality is a fundamental concept that is needed to be ascertained before any credible data investigation can commence. To achieve that, the study data must resemble a bell shaped data distributions as a reflection of a normal distribution. The study examined number of measures such as Kurtosis, Skewness, and Standard Deviation which are considered to be the data normality indicators. As for Skewness measure, it designates the evenness of the distribution where Kurtosis value is accounted for the horizontalness and peaked of the study data in regard to a bell shaped normal distribution, and the values ought to be less than 1, where Standard Deviation should not surpass three SD values (see Table 2).

### 5.2 Structural Model and path analysis

#### 5.2.1 The analysis of the hypothesised model: the initial stage

Using bootstrapping testing techniques, a 2000 samples was created for the testing procedures. The initial results of TTest shows that number of variables in both side of the hypothesised model did not pass the accepted benchmark of 1.96 mark at the 0.05 significance level, which call for reconsidering and possible dropping of these variable and call for the redesign the model with only the potentially accepted one for a retest process. Initial results can be seen in table 2 and figure 2. Based on the sample study and following the initial results hypotheses H1.3, H1.5, and H1.6 were all rejected to represent the Demographic Factors in relation to risk investment decisions as all did not pass the testing criteria of the TTest measure. Only H1.1, and H1.2, H1.4 were adopted to be reconsidered in the modified model. As far as the other Submodel of the hypothesised one; the risk oriented investment decisions (ROID), only two variable was accepted to be included again in the modified model; Requisite verily (RA) and Diversification (DV) as they passed the TTest criteria of the TTest.

Table 2. Normality statistics

	Gender	Age	EduLevel	Social status	Job Position	Monthly Income
Std. Deviation	0.37	0.92	0.64	0.63	1.01	0.62
Skewness	1.78	0.52	-0.92	0.99	-0.66	0.10
Kurtosis	1.20	-0.53	0.87	3.07	-0.99	-0.45

Table2: Results of TTest of the initial model testing

Model	Variable	TTest	Decision
DF	Age	2.536	To keep
	Edulevel	1.964	To keep
	Gender	1.866	To drop
	MonthlyIncome	2.441	To keep
	Social Status	1.259	To drop
ROID	Requisite verily (RA)	2.362	To keep
	Diversification (DV)	2.090	To keep
	Family Effect (FE)	1.456	To drop
	Size of family (SC)	1.247	To drop
	Racket Economic status (RES)	0.772	To drop
	Consciences (CO)	1.471	To drop

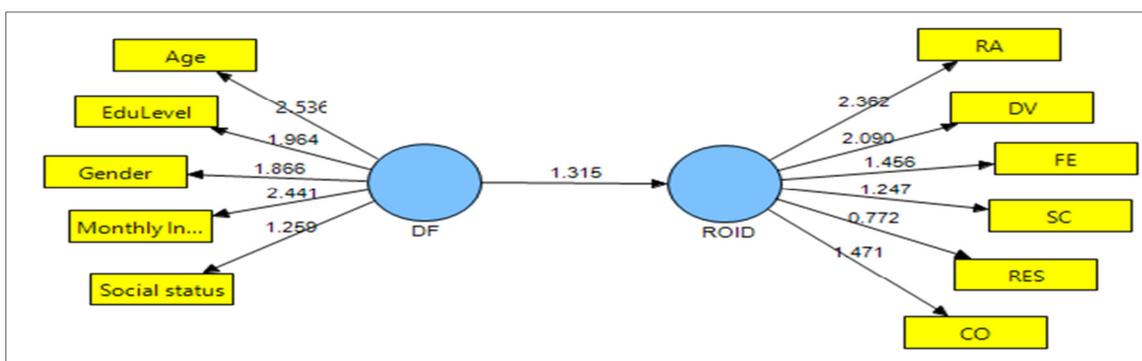


Figure 2. The initial results of the hypothesized model

### 5.2.2 The analysis of the modified (redesigned) model: the second stage

Based on the results of the initial testing stage the hypothesized model was adjusted to include only the variables that passed the testing criteria in the two Submodel of the hypothesized one as in figure 3. A bootstrapping technique was utilized again and the testing were conducted on a 2000 samples of the original 106 respondents. The results showed a significate relations and all modified hypotheses were confirmed and accepted as indicated by the first initial and the second testing, see figure 3, 4 and table 4, 5.

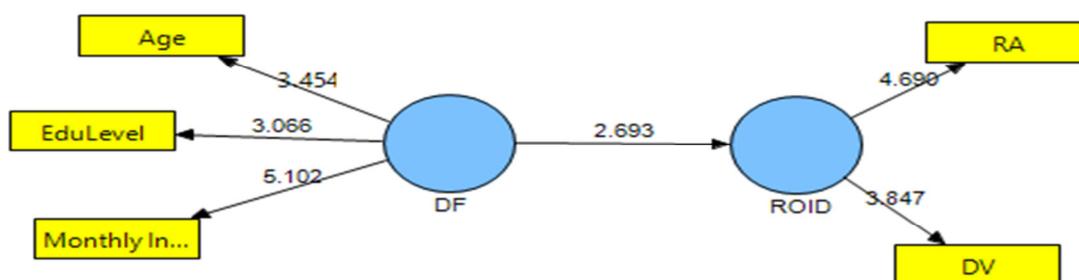


Figure 3: TTest results of the modified model

Table 4. Outer Model (Weights or Loadings; Beta, and T-Statistic)

	Beta (DF)	Beta (ROID)	TTest
Age	0.731*	-	3.454
Diversification (DV)	-	0.755*	3.847
EduLevel	0.577*	-	3.066
Monthly Income	0.949*	-	5.102
Risk Averse (RV )	-	0.913*	4.960

\* Beta was accepted at 0.05 significate level

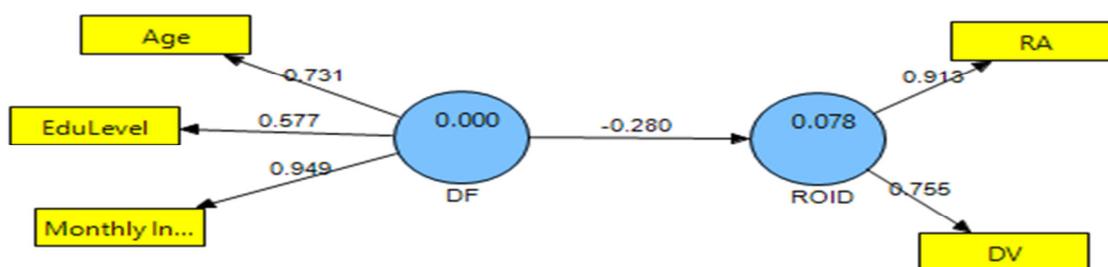


Figure 4: PLS results of the modified model

Table 5. Total Effects (Mean, STDEV, T-Values)

	Original Sample	Sample Mean	Standard Deviation (STDEV)	T Statistics	R2**
DF -> ROID	-0.280*	-0.312*	0.094	2.693	-
					0.078

\* Beta was accepted at 0.05 significance level, \*\* R2: coefficient of determination

## 6.0 Discussion and Conclusion

This study investigates the investment behaviors of individuals in Jordan with a particular interest in financial investment, in terms of attitude toward risk as their investment strategy orientation. The study results reveal that Gender and the social status of the demographic factors has no significant contributions as an identifying variable to the DF domain. As for the risk orientation domain, only risk aversion and diversification was accepted as the main drivers considered by the Jordanian investors. The results reveal a significant and valid relationship between the accepted demographic variable in the study (age, education, and monthly income) and the accepted risk variables as indicated earlier. The results indicated an inverse (negative) relation; where as individual grow in age they tend to be more less consciousness in their investment selection. Moreover, education level shows that individuals are more likely to take risk and ignore any risk reservation. Finally the more the monthly income gives more latitude to individuals to assume more risk than other with less income. As far as the variables with the more significant power, Monthly income was rank first, followed by age and the least one contributing to the DF effects on risk attitudes was the educational level.

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