

Gender Differences in Risk Aversion Behavior: Case Study of Saudi Arabia and Jordan

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Abstract—Men and women have different approaches towards investing, both in terms of strategies and risk attitudes. This study aims to focus mainly on investigating the financial risk behaviors of Arab women investors and to examine the financial risk tolerance levels of Arab women relative to Arab men investors. Using survey data on 547 Arab men and women investors, the results of Wilcoxon Signed-Rank (One-Sample) test Mann-Whitney *U* test reveal that Arab women are risk-averse investors and have lower financial risk tolerance levels relative to Arab men. Such findings can be explained by the fact of women's nature and lower investment literacy levels. Further, the current political uncertainty in the Arab region may be considered as another explanation of Arab women's risk aversion behavior. The study's findings support the existing literature by validating the stereotype of "women are more risk-averse than men" in the Arab region. Overall, when it comes to investment and financial behaviors, women around the world behave similarly.

Keywords—Arab region, financial risk behavior, gender differences, women investors.

I. INTRODUCTION

GENDER plays a vital role in the stock markets. Men and women differ in their mentality and behaviour when it comes to investment and stocks trading. Accordingly, in recent years, gender differences in investment behaviour have been capturing the attention of various academic scholars and researchers in the behavioral finance field along with professional financial practitioners and fund investment managers. The empirical evidence mainly from developed markets reveals that women are more risk-averse investors than men [1]-[3] and that is due to their limited financial literacy [4] and limited confidence levels [5]. Due to women's lower financial risk tolerance levels, they invest more conservatively and thus participate less in the stock market relative to their male counterparts [6].

Risk financial tolerance is a major factor to financial planning and important determinant for investment behavior. In the investment domain, the common stereotype is "women are more risk averse investors relative to men". Women risk aversion behavior causes them to select financial asset with lower mean and lower variance compared to men who tend to select risky financial assets. Differences in financial risk tolerance behavior amongst women are more noticeable in some societies than others, but across a wide range of different cultures, women are still considered risk averse individuals when investing [7], [8]. However, several factors as demographic factors (age, education, wealth, and marital

status) impact the risk tolerance behavior of women differently [9]. For instance, [10] revealed that the level of risk tolerance is higher for single men followed by married men followed by single women and then lastly married women. Further, [1] concluded that higher financial risk tolerance level is linked with being married, older, employed with higher income, more educated, and more financially literate.

The existing studies investigating women financial risk tolerance levels are mainly conducted for gender comparison reasons, where many of these studies focus on developed markets, specifically the U.S. market [11]-[13]. Currently, they are very limited studies that concentrate on women investors and their risk financial behaviors, particularly in the Arab region. In general, there are differences between people in developed and in emerging markets in regards to their behaviors, lifestyles, social standers, and beliefs. Accordingly, their investment attitudes and financial risk behaviors may vary. Further, the factors that influence their financial risk behavior may differ from women in emerging markets, as Arab women. Therefore, the aim of this study is to focus on investigating the financial risk behaviors of Arab women investors (represented by sample from Arab women investors living in Saudi Arabia and Jordan) and examining the Arab women financial risk tolerance levels relative to Arab men.

Arab women are becoming wealthier and more educated individuals and thus play a major role in the region's economy. They represent 48.4% of the region's population [14] and also have high literacy level [14]. For instance, women in Jordan have the highest level of literacy in the Middle East and North Africa region at 89.2% [15]. Additionally, they represent 21.3% of the region's workforce [14] and own about 21% of the region's companies [16]. However, most of the wealth is held as cash accounts, real estate, and trust units [17]. Accordingly, these women are worth studying.

This study makes two contributes to the growing literature on gender differences and financial risk behaviors. First, while the behavioral finance literature documents substantial evidence on gender differences in financial risk behaviors in many developed countries, there are very few studies that investigate such differences in emerging countries, mainly Arab countries. Further, this study focuses on investigating Arab women's financial risk behavior. According the author's knowledge, this study is one of the firsts to offer direct evidence on Arab women's financial risk behavior relative to Arab men, particularly from Saudi Arabia and Jordan. The benefit of studying Arab women investors is important because we want to examine the financial behavior of women

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investors from a culture that is completely distinct from the Western culture. In other words, we want to investigate whether the financial behavior identified for Western women investors are also found in Arab women investors.

The results show that Arab women are risk averse investors where they prefer to put their wealth in safe assets rather than risky assets, as stocks. Further, the results reveal that Arab women investors have lower risk tolerance levels compared to Arab men. The findings indicate that women from various cultures still have similar financial risk behaviors where they tend to be risk averse investors and have lower financial risk tolerance levels compared to their male counterparts. Accordingly, the gender-gap in the investment domain in developed and emerging markets can be partly explained by women's risk aversion behavior.

The paper is organized as follows. Section II reviews the literature on gender differences and financial risk tolerance levels and develops the hypothesis. Section III the methodology, data, and method used in the study. Section IV provides the findings and their analysis. Section V provides concluding remarks with suggestions for future research.

II. HYPOTHESIS DEVELOPMENT

Risk tolerance is an important determinant of human behavior and decision, including financial decision [18]. There is a systematic correlation between gender and investment risk attitude, where women tend to be more risk averse than men [19] due to their nature.

The existing literature examining gender differences in investment behavior indicates that women tend to be more risk averse than men in this domain [20], [21] and therefore invest their funds more conservatively than men [22]-[24]. Although most of existing literature investigates gender differences in financial risk tolerance in developed markets, but some studies investigate this difference using various cultures, where culture may affect the investment risk tolerance of gender. Reference [25] investigated whether cultures matter and vary in shaping the risk tolerance of individual investors. Using a sample from different developed and emerging markets, the author finds that cultures matter but vary when it comes to individuals' investment risk tolerances. However, his findings indicated (in mainly all studied cultures) men investors are willing to take more risk than women investors; the differences are statistically significant. He concludes that risk tolerance is associated with trusting and since women are less trusting than men they are more risk averse investors.

From the Arab region, there are scant studies investigating the financial behavior of Arab men and women investors. Reference [26] is mainly one of the very few studies that examine the risk tolerance level and its determinants for individual investors in Bahrain, a country where its culture influences the investment behavior of its individuals. The results revealed that men investors are more risk taker than women investors. In addition, the results also indicated that risk tolerance level is linked with demographic factors (such as education and wealth) where better-educated and wealthier investors have high propensity toward risk tolerance than less

educated and less wealthy investors. The existing studies find that being a man is positively correlated with willingness to take risks in financial matters. Therefore, we can argue that women investors in developed and emerging markets, including Arab women, are considered more risk averse investors and thus have lower risk tolerance levels than men.

In general, limited studies (especially on the Arab region) focus directly on examining women investors and their financial risk behavior, although these educated women are worth investigating particularly during the political instability in the region. Therefore, this study attempts to extend the existing literature on gender differences in financial risk tolerance levels to include Arab women investors and their financial risk behaviors relative to Arab men. Motivated by the discussed existing studies, we posit the following two hypotheses:

H1: Arab women individuals are risk averse investors.

H2: Arab women investors have lower financial risk tolerance levels relative to Arab men.

III. METHODOLOGY

To reach the study's aim, the researcher distributed online questionnaires (through the main investment banks and companies operating in Jordan and Saudi Arabia) specifically to 600 Arab women and men investors living in Saudi Arabia and Jordan. The online questionnaire is designed to investigate Arab women risk tolerance levels. Due to the cultural and local tradition norms influencing the Arab region and its people, online questionnaires are the best strategy for this research to reach Arab individual investors, particularly in Saudi Arabia and Jordan.

The online questionnaire includes two major sections; the first section is on the demographic factors, while the second section focuses on examining whether Arab women (on average) are risk taker, risk neutral, or risk averse individuals when investing in stocks. Additionally, it examines gender differences in risk tolerance level. The second section includes five concentrated questions on risk preferences when investing. To illustrate, some questions focus on examining the financial risk tolerance level of Arab women when investing compared to men investors, whether they prefer investing in very safe, less safe, or risky assets. Other questions focus on testing how women feel when investing in risky assets relative to men investors.

The researcher selected her data from Arab women because they are neglected from researchers in the field of behavioral finance and specifically researchers investigating gender differences in investment behavior due probably to religion and cultural sensitivity as well as data collection difficulty. Additionally, Arab women, their behaviors, and decision-makings are influenced by the Arabic culture and traditions, which is different for other cultures. Therefore, it is beneficial to diverse and extends the existing literature to include women from different cultures, as the Arabic culture.

The researcher chose her sample from Saudi Arabia and Jordan for several reasons. First, Saudi Arabia has the biggest stock market in the region, where most of its traders are

individual investors. In regards to Jordan, it is considered a medium income country, with diversity in its people (in regards to their ethnicity and religion). Additionally, the researcher chooses Saudi Arabia and Jordan because they are politically stable opposed to other Arab countries that face high uncertainty due the political instability.

IV. FINDINGS AND ANALYSIS

From the 600 online questionnaires distributed to Arab investors in Saudi Arabia and Jordan, 547 respondents fully completed the questionnaires, where 226 are women respondents versus 321 men respondents. Such result confirms that men are the dominant investors in stocks. The analysis of the frequency distribution also indicates women investors are mainly at the ages of 25 to 36 indicating that the majority of women participants in this study are young individual investors. Overall, the population in the Arab region is dominated by young individuals [27]. Additionally, the analysis indicates that the majority of the sample Arab women are educated. Table I summarizes the study's descriptive data for the sample Arab women investors.

TABLE I
DESCRIPTION OF THE STUDY'S ARAB WOMEN INVESTORS

Characteristic	Categories	Percent	Valid Percent	Cumulative Percent
Age Group	18-24	7.3	11.7	11.7
	25-34	24.8	39.7	51.3
	35-44	20.6	32.9	84.3
	45-54	5.5	8.7	93.0
	55-64	2.6	4.1	97.1
	65-74 Years	1.6	2.6	99.7
	≥ 75	.2	.3	100.0
Marital Status	Single	36.8	36.8	36.8
	Married	57.9	57.9	94.7
	Divorced	4.6	4.6	99.3
	Widow	.7	.7	100.0
Annual Income	< 20,000 US\$	26.0	26.1	53.8
	20,000-39,999 US\$	27.7	27.7	77.7
	40,000-74,999 US\$	24.6	24.6	98.5
	≥ 75,000 US\$	21.5	21.5	100.0
Level of Education	High School	4.6	5.0	5.0
	Diploma	5.8	6.4	11.3
	Bachelor	54.1	59.0	70.4
	Master	19.3	21.1	91.5
	Doctorate	7.8	8.5	100.0

Section two in the questionnaire (the risk tolerance level section) contains five items: one with three choices, two with four each, and two with five each. The weighing of the item scores follows a normal scale, where the highest level of risk tolerance is assigned the highest weight and vice versa. Thus, the lowest potential weight, indicating a risk-averse investor, is five and, the highest potential weight, indicating a risk-taker investor, is 21. Since the distribution of the risk tolerance variable differs from the normal distribution, the mean is replaced by the median in the test. The researcher tests H1 using a Wilcoxon Signed-Rank (One-Sample) Test.

According to Table II, the sample Arab women investors

have a median risk tolerance of 11.0. On the contrary, the results show that the median risk tolerance for Arab men investors is 13.0. The median risk tolerance for the overall sample (Arab men and women) is also 13.00 (Table II). Therefore, the researcher tests this hypothesis by taking the median risk tolerance of the overall study sample (Arab men and women investors) as the hypothesized value. If the median score of risk tolerance of the Arab women investors is significantly less than 13, then they are considered risk averse investors, and vice versa. In consequence, the null (H_0) and alternative hypotheses (H_1) are:

H_0 : Median of the total 'Risk Tolerance' score of the Arab women investors is equal (not different) to 13.

H_1 : Median of the total 'Risk Tolerance' score of the Arab women investors is less than 13.

TABLE II
MEAN AND MEDIAN SCORES OF ARAB MEN AND WOMEN RISK TOLERANCE

a. Gender = Female		
N	Valid	224
	Missing	2
Mean	11.38	
Median	11.00	
a. Gender = Males and Females		
N	Valid	544
	Missing	5
Mean	12.72	
Median	13.00	

The Wilcoxon Signed-Rank (One-Sample) outcomes (Table II) reveal that the estimated median risk tolerance score of the sample Arab women investors is 11.50. In addition, the test results indicate that the median risk tolerance score of the sample Arab women investors is significantly lower than 13.00, which is the median risk tolerance score of the overall sample of Arab men and women investors (Wilcoxon test statistic = 4522.0, $N^* = 2$, $p = .000$, $N = 204$). Therefore, the researcher rejects the null hypothesis, accepts the alternative hypothesis, and concludes that Arab women are risk averse investors. Additionally, the researcher tested for significant differences ($\alpha = 0.05$) between the sample Arab women and men investors regarding their risk tolerance levels. Since the numbers of the studied groups are two, the researcher uses the Mann-Whitney U test for this purpose. The test results (Table III) demonstrate that there are statistically significant differences between the sample Arab women and men investors in their risk tolerance levels (Mann-Whitney $U = 22077.50$, $p = .000$). The mean ranks outcome of this test (Table III) indicates that the Arab men investors have higher mean rank of risk tolerance than the Arab women investors (318 against 224 respectively). Thus, the researcher accepts H_2 and concludes that Arab women investors have significantly ($\alpha = 0.05$) lower levels of risk tolerance than Arab men investors.

The study's two findings can be explained by several factors. First, women (on average) are savers so they fear from taking high risk and loosing. Accordingly, Arab women choose safer investment, which help them achieve their set

goals and needs while avoiding worst possible losses caused by risky investments. On the contrary, Arab men select riskier investments probably to achieve the highest gains that satisfy their egos and masculinity. This expected finding signals that although Arab women have more conservative culture than women in other regions, still they have similar behaviors as women from other cultures toward financial risk taking; where they take less financial risk than men's [25].

TABLE III
PAIRWISE COMPARISON BETWEEN ARAB MEN AND WOMEN INVESTORS IN
RISK TOLERANCE LEVEL

Mann-Whitney U	22077.500	
Wilcoxon W	47277.500	
Z	-7.571	
Asymp. Sig. (2-tailed)	.000	
Ranks		
Descriptive	Men	Women
N	318	224
Mean Rank	314.07	211.06
Sum of Ranks	99875.50	47277.50
a. Grouping Variable: Gender		

The findings also confirm that gender differences in risk tolerance levels are caused mainly by nature (gender) more than culture [6]. Further, Arab women risk aversion behavior and lower risk tolerance levels compared to men may probably be explained by their lower confidence and investment literacy levels. Due to social factors related to gender inequality, men feel more involved and more capable of handling money and this causes them to be more confident and take higher risks to accumulate wealth [28]. In contrast, women are more conservative and more risk averse individuals [29] and thus less confident [5] especially when investing. Gender differences in risk taking are based on gender inequality in the society [30]. Since gender inequality is highly present in the Arab region, it leads Arab women to being less confident about their abilities to handle masculine tasks, such as investments, and this in turn may lead them to be more risk averse investors. Finally, due to the high uncertainty caused by the current political and economic instability in the Arab region, Arab women probably prefer to invest conservatively in safe assets rather than investing in risky assets. In general, the findings of the study are consistent with various existing studies, such as [22], [31].

V. CONCLUSION AND FURTHER RESEARCH SUGGESTION

Men and women behave differently when it comes to their financial and investment decision-makings. Gender difference in investing and financial behavior is a growing sub-section in the field of behavioral finance. The empirical evidence, mainly from developed markets, reveals women investors are less risk tolerant in their financial decisions than men [20]. Accordingly, women tend to invest in less risky assets and avoid aggressive behavior, and thus they participate less in the stock market relative to men [6].

This study adds to the behavioral finance literature by focusing on investigating the financial risk behavior of Arab

women and examining the financial risk behavior of Arab women investors relative to their male counterparts.

The study's findings confirm Arab women's risk aversion behavior, where they prefer to invest in safe assets rather than risky assets as stocks. Additionally, the findings reveal that Arab women have lower risk tolerance levels and accordingly invest less in stocks relative to Arab men. Such findings can be explained by the fact of Arab women may fear of taking high risk and investing their wealth in stocks, due mainly to their low investment knowledge. Overall, women do not risk invest their wealth in stocks investments and they are not confident about their investment knowledge. Political aspects also explain the risk aversion behavior of Arab women. Due to the high uncertainty in the region, Arab women may fear of taking high risk and invest their funds in stocks and thus have big chance of losing especially during bearish time.

The study's results confirm the stereotype of women risk aversion behavior and confirm that women from different culture behave similarly toward financial risk taking. This study does not investigate directly the relation between Arab women risk aversion behavior and investment literacy levels. For further research suggestions, it would be important to investigate this relation using more than one country in the region. Further, it would be beneficial to extend and investigate Arab women's investment and confidence levels.

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