

# Inter-Observer Risk-Tolerance Agreement Between Husbands And Wives

Joseph W. Goetz, University of Georgia, USA  
John Gilliam, Texas Tech University, USA  
John E. Grable, Kansas State University, USA

## ABSTRACT

*The purpose of this research was to test the extent to which variability in husbands' and wives' self-assessed financial risk can be attributed to variation in risk tolerance or observer bias resulting from measurement error. Using a sample of 188 well-educated married couples, scores from the Survey of Consumer Finances single risk-assessment item were used to evaluate the following null hypothesis: Husbands and wives do not agree on their level of financial risk tolerance. The hypothesis was tested using a percentage agreement test, a Kappa coefficient test, and a chi-square analysis. Findings led to a rejection of the null hypothesis. That is, couples exhibited general agreement in their assessment of financial risk tolerance, although the level of agreement was rather modest.*

**Keywords:** Risk Tolerance; Gender; Marital Status; Kappa Test

## INTRODUCTION

According to Kenny and Acitelli (2001), “Researchers have long been interested in interpersonal perception within relationships” (p. 439). It is generally assumed as true that husbands and wives, and others in close relationships, perceive objective and subjective criterion similarly, although as Kenny and Acitelli pointed out, the fact that two people are close interpersonally does not mean that they will be more accurate in their perceptions of situational constructs.

While there have been a few studies that have tested the interobserver agreement between husbands and wives related to relationship issues (e.g., Jacobson & Moore, 1981), there have been few attempts to evaluate interobserver agreement related to household financial risk tolerance (Roszkowski, Delaney, & Cordell, 2004). Grable and Roszkowski (2007), quoting Irwin (1993, p. 11), defined risk tolerance as a person’s willingness to engage in “behaviors in which the outcomes remain uncertain with the possibility of an identifiable negative outcome.” Financial risk tolerance, at the household level, is an important psychological attitude that helps shape individual and couple behavior (Gilliam, Goetz, & Hampton, 2008; Grable, Roszkowski, Joo, O’Neill, & Lytton, 2009). If, for instance, a husband and wife need to make a joint financial decision, the choice of whose tolerance for risk should guide the preference becomes very important. Consider the investment decision most commonly faced by married couples—the allocation of assets within a defined contribution retirement plan (e.g., 401k, 403b, or 457 plan). Presumably, the savings goal of a two-person household involves joint decision making. Beyond the mechanics of whose account is being allocated, a cooperative decision must be made in relation to how savings are distributed among stocks, bonds, cash, and other assets. A key determinant associated with this decision is the maximum tolerance for risk exhibited as an attitudinal construct by the couple (see Roszkowski and Davey [2010] for a discussion of the association between risk tolerance and portfolio decision making). In fact, one recent study attempted to measure the impact of risk tolerance on wealth accumulation and found risk tolerance to account for about 10% of the wealth accumulation variance between men and women (Neelakantan, 2010).

If it is assumed that couples in close relationships (e.g., marriage) perceive risk tolerance similarly, then the individual asset allocation decision is, by default, the same or similar as the couple choice, holding other factors constant. If, on the other hand, a husband and wife exhibit interobserver disagreement, then the allocation choice made by one spouse may result in relationship conflict because of differences in risk-tolerance perception.

There is anecdotal evidence to suggest that differences in perceived risk tolerance may in fact exist. Nearly all of the risk-tolerance literature suggests that men and women perceive risks differently, with women being less risk-tolerant, in almost all domains of daily living, compared to men (Arch, 1993; Jianakoplos & Bernasek, 1998; Kohler, 1996; Nicholson, Soane, Fenton-O’Creevy, & Willman, 2005; Schubert, Brown, Gysler, & Brachinger, 1999; West, Moskal, Dziuban, & Rumbough, 1996; Zeff, Fremgen, & Martinez, 1994). Sung and Hanna (1998) found that this gender difference likely extends to married individuals. In their study, on average, the risk tolerance of husbands was higher than wives’ tolerance for financial risk, although this difference in risk tolerance appeared to be muted when financial behaviors were made. Roszkowski and his associates (2004) also noted that married men exhibit a higher willingness to take on financial risks than married women. In their study, however, the actual difference in risk attitudes between men and women was not extremely large.

An important gap in the literature exists. What is missing is an indication of the level of agreement husbands and wives share when evaluating their risk tolerance. The study by Roszkowski et al. (2004) appears, after an exhaustive search, to be the only study to estimate the degree of association between spouses’ financial risk tolerance, although a recent study (Arano, Parker, & Terry, 2010) noted that women tend to be more risk averse compared to their male spouses; however, it is important to note that the Arano et al. study was based on asset allocation risk measures rather than on risk attitudes. The results were not at all as clear cut in the Roszkowski et al. study. In almost all cases, for example, husbands reported higher risk tolerance than their wives; however, “the extent of the gap between their scores was more proportional across the sample” (p. 138). This means that although men might report a higher risk tolerance, the wives of the highest male risk takers also exhibited an elevated level of risk tolerance, albeit less than their husband’s risk tolerance. The current study was designed to further address this issue. Specifically, the purpose of this study was to test the extent to which variability in husbands’ and wives’ self-assessed financial risk tolerance can be attributed to variation in risk tolerance or observer bias resulting from measurement error.

## **LITERATURE REVIEW**

Researchers have had a long and ongoing interest in better understanding how married partners make financial decisions. Consider work originally conducted by Ferber and Nicosia (1972). They tested a framework designed to assess asset accumulation strategies of married couples. Based on their research findings, they noted that wives and husbands may disagree on savings and asset accumulation strategies. At the time, this study was noteworthy because it was previously thought that married couples ought to agree on household financial management issues. Although readers today might look askance at this finding, it was, nonetheless, a significant insight into the way married couples make decisions.

By the mid-1970s work in the area of couples’ financial management behavior centered on determining which partner’s attitudes, wife or husband, influences financial behavior (e.g., Ferber & Lee, 1974). That is, research was focused on identifying what was called a family financial officer. In a paradigm switch, only a few researchers remained at the time who continued to believe that financial decisions were generally being made in a collaborative manner. By the early 1990s the research emphasis had changed again. McConocha, Tully, and Walther (1993), for example, further differentiated household financial decision making by asking if couples work mostly together or mostly separate when making household financial decisions. They developed a list of typical household financial tasks. In some cases, tasks were dominated by women (e.g., managing store credit cards and prioritizing bill payments). In other situations, men reported responsibility for decisions (e.g., arranging a home mortgage). McConocha and her associates examined one task of particular interest to those studying the financial risk tolerance of married couples. They asked, in relation to developing an investment plan, whether (a) mostly she decides for both, (b) mostly he decides for both, (c) usually separate for each of us, (d) mostly together, or (e) not applicable. Although more men than women reported having responsibility for this decision, the largest portion of respondents implemented this task together. Overall decision making was similarly conducted jointly. These results have implications for those interested in the risk choices of married couples. In terms of risk evaluation, it is possible that individuals within a marital relationship might share a willingness to engage in a risky behavior more than disagree. In a sense, the research appears to be moderating back to the opinion of most household observers in the mid-20<sup>th</sup> century, namely, a sharing of marital attitudes and behaviors might be more common than generally assumed.

## **Gender, Marital Status, and Risk Tolerance**

Chaulk, Johnson, and Bulcroft (2003) suggested, as is reflected in their family development theory, that once individuals marry they experience greater focus on preservation of resources for the future needs of their family. The authors also made a comparison between marriage and Prospect Theory in that when individuals marry they begin to experience less concern about gains and begin to focus on potential losses in the interest of protecting resources for their current and future family. The majority of past research indicates that single individuals, particularly men, appear to have a higher tolerance for risk (Hallahan, Faff, & McKenzie, 2004; Hawley & Fujii, 1993; Yao & Hanna, 2005). The reason for this is often assumed to be because single individuals have fewer obligations to others and less to lose when taking higher amounts of risk. Financial service professionals also commonly assume that single clients are more risk tolerant than married clients and women are more risk averse than men (Roszkowski & Snelbecker, 1998). These assumptions have been supported by numerous publications (e.g., Guiso, Jappelli, & Terlizzese, 1996; Hallahan et al., 2004; Hinz, McCarthy, & Turner, 1997). However, other studies indicate that marital status should not be assumed to be associated with financial risk tolerance (e.g., Hariharan, Chapman, & Domian, 2000; McInish, 1982). Furthermore, studies have shown married couples to possess a higher proportion of risky assets than those who are unmarried (Gutter, Fox, & Montalto, 1999; Xiao, 1996). One explanation for the inconsistencies in prior research may be that many of these studies use the traditional Survey of Consumer Finances (SCF) risk-tolerance data to attribute risk tolerances levels to the household head, regardless of who responded in the household. In households with a married couple, the male is the default SCF head of household. Therefore, the possibility exists that a risk-tolerance level attributed to the male may, in fact, result from the response of a female. Moreover, past research indicates that men be more accurate in assessing their own level of risk tolerance than women (Moreschi, 2005). These challenges are rectified in the present study. In addition, inconsistencies on the significance of gender and marital status on risk tolerance could also be explained by the varying levels of sophistication and psychometric properties of the different measures of risk tolerance used in previous research.

Nearly all prior studies that examine gender and risk tolerance use samples of single men and women, whereas the present study examines couples by addressing whether differences in risk tolerance exist between husbands and wives. Currently, only a few studies have examined married couples and risk tolerance from any perspective (e.g., Arano et al., 2010; Gilliam et al., 2008; Roszkowski et al., 2004; Yao & Hanna, 2005). Given the inconsistencies and lack of extant publications, further research is warranted to more fully understand gender differences in financial risk tolerance within the context of a marriage. More specifically, there is a significant gap in the literature examining the risk tolerance level of agreement between husbands and wives.

## **METHOD**

### **Sample**

Data were collected in 2006 from an online survey of married individuals ( $N = 430$ ) living predominately in Texas. The sample was reduced by 54 individuals due to incomplete data leaving 188 married couples. On average, respondents were 44.2 years of age ( $SD = 11.6$ ). Men were slightly older (45.20 years) compared to the women in the sample (43.22 years); however, while there was a difference, the age variation was not statistically significant. Respondents reported duration of marriage ranging from 1 year to 46 years, with the average, median, and standard deviation of marriage being 14.1, 11.5, and 11.0 years, respectively. The sample included a high proportion of well-educated individuals as more than 40% of respondents reported having a post-graduate degree. This was true for both husbands and wives. Another 34% of respondents held a bachelor's degree, while 15% and 11% reported having an associate's degree or high school diploma, respectively.

### **Outcome Variable**

Husband and wives were asked to complete a single-item risk-tolerance question adapted from the Survey of Consumer Finances (SCF). The SCF is sponsored by the Federal Reserve Board and administered by the National Opinion Research Center at the University of Chicago. While it is possible that husbands and wives answered together when completing the survey, given that the question was part of an online survey, with each spouse

receiving their own questionnaire, it is more probable that self-evaluation occurred independently. The question used in this study differed from the original SCF item in that the question asked each respondent to indicate their own risk tolerance. In the SCF it is possible that the respondent may be responding for another person in the household. The question is shown below:

Which of the following statements on this page comes closest to the amount of financial risk that *you* are willing to take when you save or make investments?

1. take substantial financial risk expecting to earn substantial returns (Coded 4)
2. take above average financial risk expecting to earn above average returns (Coded 3)
3. take average financial risk expecting to earn average returns (Coded 2)
4. not willing to take any financial risk (Coded 1)

Of the husbands, 6.4% reported no willingness to take risks; 43.1% indicated an average risk tolerance; 41.5% reported an above-average tolerance for risk, and 9.0% indicated a substantial risk tolerance. Risk-tolerance responses for wives were skewed lower. Slightly more than 10% of wives (10.6%) indicated no risk tolerance; 63.8% reported an average risk tolerance; 23.4% indicated an above-average tolerance for risk, and only 2.1% reported having a substantial tolerance for risk. When evaluated as an entire sample, respondents reported an average and standard deviation score on the SCF item of 2.4 and 0.7, respectively, whereas the husbands indicated an average and standard deviation score of 2.5 and 0.7, respectively; wives reported a mean and standard deviation score of 2.2 and 0.6, respectively. Although SCF scores for husbands and wives were different, the variation differences in reported scores were not statistically significant.

### **Procedure**

The purpose of this study was to test the extent to which variability in husbands' and wives' self-assessed financial risk tolerance can be attributed to variations in risk tolerance or observer bias resulting from measurement error. That is, this research was designed to determine the amount of interobserver agreement between husbands and wives in terms of risk tolerance. The null and alternative hypothesis was as follows:

**H<sub>0</sub>:** Husbands and wives do not agree on their level of financial risk tolerance.

**H<sub>a</sub>:** Husbands and wives do agree on their level of financial risk tolerance.

Three approaches were used to test the null hypotheses of interobserver agreement. The first was a simple measure of agreement. The second was the calculation of the kappa coefficient ( $\kappa$ ). The kappa coefficient accounts for by chance agreement that remains non-estimated with a percentage agreement test. Third, a chi-square test was employed to triangulate findings.

### **RESULTS**

#### **Percentage Agreement Test**

The following formula was used to calculate the percentage agreement between husbands and wives (Pett, 1997):

$$\text{Percentage Agreement} = ((\# \text{ of Agreement}) / (\# \text{ of Agreements} + \# \text{ of Disagreements})) \times 100$$

Table 1 shows that 93 married couples agreed on their level of risk tolerance, while 95 disagreed. The percent agreement, therefore, was 49.5%.

#### **Kappa Coefficient Test**

According to Pett (1997), the Kappa test can be used whenever it is important to “determine the extent to

which the variability in the observed outcomes can be attributed to true variation in the characteristic that is being assessed or is, instead, the result of errors of measurement, including observer biases and disagreement” (p. 237). The basic form of Kappa is as follows:

$$(P_o - P_c)/(1 - P_c)$$

where,

P<sub>o</sub> = Proportion of Observed Agreement

P<sub>c</sub> = Proportion of Chance Agreement

In order to calculate the Kappa coefficient ( $\kappa$ ) a contingency table was developed. The contingency table was based on survey data. A portion of the response data is shown in Table 1. Scores on the SCF risk item for wives and husbands were compared. Scores that were similar were coded 1, otherwise 0 (column three). This information was transferred to Table 2. When calculating the coefficient, P<sub>o</sub> “is determined by summing the number of agreements that appear on the diagonal of the contingency table and dividing by the total number of paired observations” (p. Pett, 1997, p. 240). Calculating P<sub>c</sub> is more difficult. Pett described the process as follows:

*First, the row and column marginal totals for each cell on the diagonal are multiplied together; the result is divided by the total number of observations. This provides the number of observations that could have been expected to occur by chance in the particular cell on the diagonal. The proportion of chance agreement, P<sub>c</sub>, is obtained by dividing this expected frequency by the total number of observations. Finally, these proportions are summed across all the cells on the diagonal to obtain the total proportion of chance agreement (pp. 240-241).*

**Table 1: Sample of Data for Contingency Table**

SCF Score for Wife	SCF Score for Husband	Difference Between Wife and Husband Same = 1.0 Different = 0.0
3.0	4.0	0.0
2.0	3.0	0.0
2.0	2.0	1.0
3.0	3.0	1.0
3.0	3.0	1.0
2.0	3.0	0.0
2.0	3.0	0.0
2.0	3.0	0.0
2.0	2.0	1.0
2.0	3.0	0.0
2.0	2.0	1.0
2.0	4.0	0.0
2.0	3.0	0.0
2.0	2.0	1.0
2.0	2.0	1.0
2.0	2.0	1.0
2.0	2.0	1.0
2.0	2.0	1.0
2.0	1.0	0.0
3.0	2.0	0.0
2.0	3.0	0.0

Because calculating the kappa coefficient precisely from a contingency table is difficult,  $\kappa$  was computed using procedures available in PASW. Table 2 presents the test results. The exact percentage of agreement from above was 49.5%. The  $\kappa$  coefficient was used to adjust this percentage for by chance agreement between husbands and wives. Values for  $\kappa$  can range from +1 to -1. Positive numbers indicate agreement. Larger positive numbers

point toward high agreement. The resulting  $\kappa$  coefficient in this study was .18 ( $z = 3.8, p < .01$ ), which indicates that husbands and wives exhibited interobserver agreement. The relationship was statistically significant; however, the level of agreement was weak (Bakeman & Gottman, 1986). Notwithstanding the strength of agreement, the null hypothesis was rejected.

**Table 2: Kappa Test for Husbands and Wives Risk-Tolerance Agreement**

Wives	Husbands				Total
	No Risk Tolerance	Average Risk Tolerance	Above-Average Risk Tolerance	Substantial Risk Tolerance	
No Risk Tolerance	6	9	4	1	20
Average Risk Tolerance	5	62	46	7	120
Above-Average Risk Tolerance	1	9	25	9	44
Substantial Risk Tolerance	0	1	3	0	4
Total	12	81	78	17	188

### Chi-Square Test

The perplexing relationship between couples' agreement, together with the generally low level of interobserver agreement, prompted the use of a chi-square test to determine if the level of agreement weakened/strengthened either for couples who had been married a shorter or a longer period of time. The sample was split at the median based on years married. Those who had been married 11 years or less were coded 1, otherwise 0. Further, couples who reported the same level of risk tolerance were recoded to 1. Those couples that exhibited differing levels of risk tolerance were coded 0. A 2 x 2 chi-square analysis was performed with recoded years married and differences in risk-tolerance estimation as the two groups. No statistically significant differences were noted.

### DISCUSSION

Among this sample of 188 married couples, the alternative hypothesis, which stated, husbands and wives do agree on their level of financial risk tolerance, was confirmed with a kappa coefficient test. Although the null hypothesis was rejected, the level of agreement between husbands and wives was not high. The confirming chi-square test indicated that there was no difference in the level of agreement based on years married for this sample.

Unlike other studies that have found a disparity in risk tolerance directly attributable to gender differences of respondents, no statistically significant variance was noted in this study. While it is true that men exhibited a higher raw SCF risk-tolerance score, the difference between men and women was not large. This hints at the possibility that gender differences in risk tolerance may be reduced among married individuals. That is, the risk perceptions of married couples may be more similar due to mate selection variables or because of the closeness of the current relationship. For example, levels of general confidence (i.e., general belief that uncertainty is low and life occurrences are generally under control) and general trust have been found to be negatively correlated with risk perception (Siegrist, Gutscher, & Earle, 2005), and these personality traits may also be important factors in mate selection. Sung and Hanna (1998) seemed to confirm the potential mitigating impact of mate selection or relationship factors on the risk tolerance variance between married women and men by looking at the objective outcome associated with the estimation of risk tolerance. They failed to note any gender differences in retirement plan participation or investment allocation choices among married men and women, even though risk-tolerance differences did exist. In their study, married individuals acted similarly when engaging in risky financial decisions.

Schubert et al. (1999) found that women and men made similar investment decisions when presented with a context-dependent investment choice. They suggested that differences in opportunities may explain the observed gender differences in risk behavior. Married couples may view their aggregated accounts as one overall portfolio, thus experiencing similar contexts of investment choice, which is consistent with the present study. Similar marital contextual factors such as aggregate income and assets, lifestyle, and goals in the marriage may have a mitigating effect on the risk-tolerance difference found between *unmarried* men and women in previous studies.

Roszkowski et al. (2004) outlined further support for marital agreements in the general risk domain. They noted that husbands and wives tend to report similarities in sensation seeking—a factor associated with financial risk tolerance. They also reported that husbands are apt to exhibit a higher tolerance for risk than their wives. The present study supports this conclusion. Further, Roszkowski et al. went on to state that the actual level of agreement between husbands and wives, while positive, was not, in a correlational sense, very strong. Again, the findings from the present study lend support to this finding. Husbands and wives did tend to agree in their risk-tolerance assessments, but the strength of agreement was rather weak.

## **IMPLICATIONS**

The results of this study, which indicate that husbands and wives generally agree in terms of tolerance for risk, presents a potential problem for practitioners who need to know to what extent married couples agree on evaluations of financial risk tolerance. Consider a financial counselor who is advising a couple on mortgage refinancing alternatives. On the one hand, results from this study suggest that the practitioner can be reasonably assured that the risk-tolerance estimation of one spouse represents the other spouse's tolerance for risk as well; however, the caveat noted above that the level of agreement in this study was low suggests that the financial counselor would be well advised to assess both the husband's and wife's risk tolerance before making a risk-based recommendation.

Further research is required to examine the dynamics that contribute to spouses' level of risk-tolerance agreement and risk perception. For example, there may be greater similarity in spouses' perception of risk due to similar financial experiences within their marriage. Professionals can clearly benefit from being more cognizant of the fact that careful assessment of a couple's risk tolerance should take place. A multidimensional approach should be utilized to determine the appropriate amount of risk to take in a couple's investment portfolio. Practitioners should also be aware that adjusting the risk of a portfolio downward from what is consistent with the husband's tolerance for the assumed benefit of the wife may result in the suboptimal allocation of their investment portfolio and reduce their likelihood of meeting their goals. Instead, appropriate risk-tolerance assessment should take place independently with both the husband and wife. Based on the findings of this study, financial planners should refrain from employing the heuristic that husbands will be substantially more risk tolerant than their wives. Rather, financial professionals should be aware of potentially similar risk preferences of husbands and wives.

Finally, given the self-selection bias inherent to this sample, there are potential limitations associated with the generalizability of the findings to the overall adult population. Given that the majority of the sample was made up of current clients of financial services firms, however, the sample may be more representative of the subset of the population that utilizes professional financial planning and counseling services. Furthermore, the findings are quite valuable in that they address a current gap in the literature examining risk-tolerance agreement between husband and wives. Future research should replicate this study using additional measures of financial risk tolerance to corroborate the results and to further explore the dynamics unique to spousal similarities or differences in risk tolerance.

## **AUTHOR INFORMATION**

**Dr. Joseph W. Goetz** is an assistant professor of family financial planning at the University of Georgia. His research focuses on financial planning pedagogy, investment risk tolerance, and relational financial therapy. He received his bachelor's degree in psychology from the University of Missouri-Columbia. He completed two master's degrees in the areas of financial planning and psychology and doctoral degree in consumer economics from Texas Tech University. He is a founding board member of the Financial Therapy Association. He is also a founding partner of E&G Wealth Advisory Group, an independent financial planning and wealth management firm based in Athens, Georgia.

**John Gilliam** is an Assistant Professor in the Division of Personal Financial Planning at Texas Tech University. His academic life is strongly influenced by 30 years of professional experience as a financial advisor. His research and academic interest include the assessment of financial risk tolerance, financial risk tolerance in couples, the impact of behavioral heuristics and biases in financial planning, Intra-cohort differences among Baby boomers, and health care considerations during retirement. He is a Certified Financial Planner™, Charter Life Underwriter and Chartered Financial Consultant.

**Professor John Grable**, CFP® is the Certified Financial Planner™ Board of Standards Inc. registered undergraduate and graduate program director at Kansas State University. Dr. Grable also serves as the Director of The Institute of Personal Financial Planning and Co-Director of the Financial Therapy Clinic at K-State. He is currently the co-editor of the *Journal of Financial Therapy*. He has served on the Board of Directors of the International Association of Registered Financial Consultants (IARFC), as Treasurer and President for the American Council on Consumer Interests (ACCI), and as Treasurer for the Financial Therapy Association.

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