

The Role of Assertiveness in Portfolio Risk and Financial Risk Tolerance Among Married Couples

John Gilliam, Mayukh Dass, Dorothy Bagwell Durband, and Vickie Hampton

The financial risk tolerance of married couples was examined in order to determine if assertiveness impacted their financial decisions. Education, gender, asset ownership, relative income, and the wife's cohort were considered to ascertain the possible influence of these factors on a couple's assertiveness. Data were obtained from 110 couples using the Path 6 Profile and the Couples' Risk Tolerance Questionnaire. Although asset ownership and the wife's cohort affected the couple's assertiveness, assertiveness itself did not notably impact their combined financial or portfolio risk tolerance. However, wife's assertiveness did show a positive correlation with couple's mean age and a negative correlation with husband's income. Implications include communication strategies for couples when the wife was born between 1946 - 1967, has earned an advanced degree, and has had significant financial contribution to the family.

Key Words: assertiveness, financial planning, financial risk tolerance, investment risk, Survey of Consumer Finances

The financial landscape has changed significantly in the past five decades. The explosion of the mutual fund industry and changes in pension plans toward self-directed 401(k) type retirement vehicles have placed the risk of investing on individuals. These changes have increased the need for financial planners to accurately assess their clients' financial risk tolerance. Previous studies have shown that women are less risk tolerant than men (Bajtelsmit & Bernasek, 1996; Bajtelsmit, Bernasek, & Jianakoplos, 1999; Bajtelsmit & VanDerhei, 1997; Eckel, 2002; Gilliam, Goetz, & Hampton, 2008; Grable & Joo, 2000; Grable, Lytton, & O'Neill, 2004; Guiso, Jappelli, & Terlizzese, 1996; Hallahan, Faff, & McKenzie, 2003, 2004; Hariharan, Chapman, & Domian, 2000; Hartog, Ferrer-I-Carbonell, & Jonker, 2002; Jianakoplos & Bernasek, 1998; Powell & Ansic, 1997; Roszkowski, Delaney, & Cordell, 2004; Sung & Hanna, 1996; Yao, Hanna, & Lindamood, 2004).

While gender differences in risk tolerance are well documented in the literature, the societal changes that have

occurred within social roles could have an impact on risk tolerance. The traditional social roles of the 1950s placed women in a domestic environment and men in the workplace. However, in the late 1960s and 1970s, women's roles began to change in popular culture to reflect a greater degree of equality (Twenge, 2001). During the same time, these changing social roles placed more women in the workplace, requiring them to make financial decisions about their retirement savings and investments.

Social role theory suggests that women who demonstrate more agentic characteristics take on more traditional male roles (Eagly & Wood, 1991). Eagly (1987) defined the agentic attribute as "an assertive and controlling tendency, and men are believed to manifest this tendency more strongly than women" (p. 16). In addition, she noted that "examination of the attributes that comprise this dimension in various studies shows that the majority of attributes pertain to self-assertion" (p. 16). In a cross-temporal meta-analysis, Twenge (2001) studied assertiveness in women

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who came of age (19-20) between 1931 - 1993. Her findings demonstrated that women's assertiveness was higher for those in the cohorts between 1931 - 1945 and 1968 - 1993, and lower for the 1946 - 1967 cohort. It was also reported that while men have previously scored higher on assertiveness measures than women, women "now score the same or even slightly higher" (Twenge, 2001, p. 140).

The first two cohorts of women, correlate with an increase in college degrees awarded to women during the same time period. In 1930 and 1940, roughly 40% of college degrees were awarded to women. This decreased in 1950 and 1960 (32% and 35%, respectively), and it was not until 1965 that the percentage returned to its 1941 level. Since 1965, there has been a dramatic increase in the number of degrees awarded to women, reaching 56% in 1997 (U.S. Bureau of the Census, 1925-2000). There was a similar trend in doctoral and law degrees obtained by women during this same period. This increase has generated greater professional choices with higher status careers for women, which has generally resulted in a higher potential for income and wealth (Eagly, 1987; Eagly & Steffen, 1986; Eagly & Wood, 1982; Lockwood, 1986).

The purpose of this research was two-fold. The first goal was to determine whether or not assertiveness impacts a couple's combined portfolio risk and financial risk tolerance. In the given context, if the assertiveness of women has increased, as social role theory suggests, the findings of this research should indicate that wives who exhibit higher levels of assertiveness should also have a higher risk tolerance score. In turn, this should increase the couple's willingness to accept a more risky portfolio. The second goal was to examine the effect of the individual education of the husband and wife, the couple's asset ownership, gender, husband's relative income, wife's relative income, and the wife's cohort on the assertiveness of the husband and wife.

This paper contributes to the literature as being the first known examination of the potential influence of assertiveness on financial risk tolerance and portfolio risk. This research is both important and timely as the growing societal changes and differing assertiveness among husbands and wives are generating more challenges to financial planners. In other words, insights on the effect of assertiveness are necessary and long due.

Literature Review

Social role theory, the theoretical foundation used in the current study to explain assertiveness, was developed by

Alice H. Eagly and presented in the 1987 publication *Sex Differences in Social Behavior: A Social-Role Interpretation*. Social role theory is based on sex differences that are a product of the social roles regulating adult behavior (Eagly, 1987). In an earlier work (1983), Eagly observed that in role relationships, such as husbands and wives, each partner held a definite set of expectations about the other's behavior. In most situations, a traditional hierarchical role was assumed for each spouse. This positioning, according to Milgram (as cited in Eagly, 1983), bestowed legitimacy on the different levels of power and status in the relationship. The acceptance of this assigned legitimacy gave the spouse with more authority the right to "exert influence by virtue of his or her position in the social system, and the individual lower in the hierarchy is believed to have the obligation to comply with the demands that are made" (p. 971). From a traditional social role perspective, the male role has generally assumed responsibility for financial matters, and the female role assumed domestic responsibilities (Luepnitz, 1988). Regan and Sprecher (1995) stated:

"Such beliefs and expectations are assumed to arise from the distribution of men and women into different social roles in natural settings; specifically, each gender is believed to possess attributes suited for the roles typically occupied (for men, these roles are primarily occupational and economic; for women, these roles are typically domestic)" (p. 222).

However, since the 1960s, many couples have aspired to an egalitarian approach in their intimate, heterosexual relationships (Gilbert, 1993; Scanzoni, Polonko, Teachman, & Thompson, 1989; Schwartz, 1994). This change of attitude could be the result of increasingly higher educational achievement by women.

Yet, a limited number of studies on financial risk tolerance exist that mention assertiveness. According to Roszkowski and Grable (2005), "people are best at estimating their own degree of depression ($r = .58$), anxiety ($r = .54$), hostility ($r = .52$), assertiveness ($r = .51$), activity ($r = .51$), and need for achievement ($r = .45$)" (p. 32). The assessment measure used in this study (Path 6 Profile) is based on the same measurement instrument used by Roszkowski and Grable (2005). This research further examined whether or not the influence of assertiveness has had an impact on married couple's financial risk tolerance and portfolio risk levels.

The risk tolerance measure used in this study is the single question from the 2001 Survey of Consumer Finances (SCF): Which of the 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
2. Take above average financial risks expecting to earn above average returns
3. Take average financial risks expecting to earn average returns
4. Not willing to take any financial risk

Although this question is the most widely used measure of financial risk tolerance reported in the literature, there have been only two published empirical studies examining its validity and reliability. After comparing the SCF question to their own multidimensional financial risk-tolerance assessment, Grable and Lytton (2001) concluded that the “face validity of the item is well founded, while the consistency of the results associated with the use of the item tends to support its construct validity” (p. 46). The SCF question, in comparison with Grable and Lytton’s 13-item index, had a concurrent validity of .54 (2001). Grable and Schumm (2007) used five different methods to estimate the measure’s reliability and reported a range of .52 to .59, indicating a relatively low reliability. Previously, Grable and Lytton (2001) noted that “the response patterns to the question over different time periods have remained relatively stable suggesting that the item is somewhat reliable” (p. 43). In the last decade, several studies have used the SCF risk tolerance measure as a dependent variable (Grable & Lytton, 2001; Hanna, Gutter, & Fan, 2001; Hanna & Lindamood, 2005; Yao & Hanna, 2005). Yao and Hanna (2005), referencing the Grable and Lytton (2001) and Hanna, Gutter, and Fan (2001) discussions of the SCF limitations, stated that “the SCF risk-tolerance measure may be a useful indicator of intentions in investing and may be superior to measures of risk tolerance based on actual portfolio allocation, since many households have no investment assets” (p. 70). Furthermore, Grable and Lytton (2001) concluded that “the SCF question may, in fact, be a better measure of investment risk tolerance than financial risk tolerance” (p. 50).

Other researchers have suggested that the SCF measure is more situational in nature in regard to an individual’s financial standing (Chen & Finke, 1996; Hanna & Chen, 1997). Hanna, Gutter, and Fan (2001) reported that “various measures of risk tolerance are not rigorously linked to the concept of risk tolerance in economic theory” (p. 54).

They also found that the SCF measure might reflect “a combination of current situation and/or the investor’s limited information” (p. 54). Even though the specific degree of usefulness of the SCF risk measure has been debated, it continues to be used throughout the risk tolerance literature, and its results have been published in a variety of peer-reviewed journals.

Research has shown that assertiveness is correlated with the status and role of an individual in the workplace (Eagly, 1983). In extending social role theory to financial risk tolerance, it is expected that a wife who has a high assertiveness score will demonstrate agentic characteristics more similar to her husband. It is hypothesized that this higher degree of assertiveness will result in the wife having a greater willingness to take financial risk, a characteristic that is typically shown by the husband. If this hypothesis is true, it should be reflected in the couple’s asset allocation.

Methodology

Hypotheses

Three hypotheses were tested:

- H1: The level of individual assertiveness for the husband and wife will have a significant positive relationship on the couple’s combined financial risk tolerance.
- H2: The level of individual assertiveness for the husband and wife will have a significant positive relationship on the couple’s combined portfolio risk level.
- H3: Higher levels of education, the couple’s asset ownership, gender, wife’s relative income, husband’s relative income, and the wife’s cohort will have a significant positive relationship on the assertiveness of the husband and wife.

Data and Surveys

The data used in the current study were collected from 23 financial planners located in 19 of the 48 contiguous United States. A total of 110 couples completed two web-based surveys administered by Financial DNA® during the survey period of April 25, 2006 to August 21, 2006. Financial DNA® is a company that specializes in assessing an individual’s behavior in a financial advisory setting. These surveys are used by financial planners to better understand and communicate with clients. The financial planners were selected by Financial DNA® and asked to randomly select clients to participate in the surveys. The two surveys uti-

lized were the Path 6 Profile and the Couples' Risk Tolerance Research Questionnaire.

The Path 6 Profile measures six behavioral factors or traits: dominance, extroversion, compassion, conscientiousness, adventurousness, and innovation. This questionnaire utilizes a forced-choice scoring method but due to copyright restrictions by Financial DNA®, the exact pairings of word groups are not included.¹ The profile is a variation of the Career Direct Personality Inventory (CDPI) (Stokes, Toth, Ellis, & Noble, 1996). The CDPI represents the seven broad personality traits of extroversion, conscientiousness, compassion, stress, innovation, adventurousness, and dominance. These seven broad traits were tested for convergent and discriminate validity with the Neuroticism-Extroversion-Openness Personality Inventory (NEO-PI) (Costa & McCrae, 1985) and the Hogan Personality Inventory (Hogan, 1986). Analysis for internal consistency was performed on the broad traits and ranged from .88 to .94. A 2-week test-retest ranged between .86 - .95. In constructing the forced-choice inventory, words from each of the seven broad personality traits were ranked based on social desirability. The next step included placing words of the same rank from each trait into word groups. The profile consists of 120 words in groups of three, with the respondents choosing which word is most or least like themselves.

The behavioral factors, or traits, in the Path 6 Profile showed moderate to significant correlation with the traits from the CDPI, ranging between .68 - .81 with an average correlation of .73. A test-retest of the Path 6 Profile was conducted by Financial DNA® to examine reliability. A sample of 620 individuals was retested between 2 - 20 weeks (average of 6 weeks) after initially taking the profile, with a .86 average correlation of the factors. The be-

havioral characteristic used in this study is assertiveness, which is a sub-factor of the dominance trait in the Path 6 Profile. This characteristic moderately correlates with the NEO-PI (Costa & McCrae, 1985) trait of extroversion, $r = .33, p < .0001$, and the Hogan ambition scale (Hogan, 1986), $r = .54, p < .0001$. Assertiveness, according to Financial DNA®, describes a person who states his or her position boldly, confidently, and with self-assurance.

The Couples' Risk Tolerance Research Questionnaire (CRTRQ) was constructed for the purpose of gathering financial risk tolerance data, current portfolio allocation, and demographic information.² The questionnaire used the 2001 SCF financial risk tolerance question. The dependent variable in the second hypothesis was portfolio risk level. This was determined by obtaining the percentage of assets in each of the five categories from the responses to the CRTRQ of each participant in the study. The categories consisted of (a) stock or equity funds, (b) bonds or bond funds, (c) investment property and/or real estate investment trust, (d) cash, and (e) other. The "other" category consisted of various types of collectibles, commodities, and business ownership. An expert panel of five individuals selected by the researcher examined the portfolios of each participant and independently ranked them as conservative, moderate, or aggressive. The inter-rater reliability of the panel, based on Cronbach's alpha, was .89 for both husbands and wives. Thus, consistency existed in the risk level ratings among the members of the expert panel. See Table 1 for the descriptive statistics for each rater.

Variables

The dependent variable in the first hypothesis, level of financial risk tolerance, is from the 2001 SCF, and asks an individual about his or her own financial risk tolerance.

Table 1. Portfolio Risk Level Determined by Expert Panel

Rater	Women (n = 110)				Men (n = 110)			
	M	SD	Min.	Max.	M	SD	Min.	Max.
1	2.08	.84	1	3	2.11	.86	1	3
2	1.98	.82	1	3	2.05	.81	1	3
3	2.44	.80	1	3	2.36	.75	1	3
4	1.93	.91	1	3	2.01	.91	1	3
5	2.41	.75	1	3	2.47	.69	1	3

This variable was reverse coded with a range from 1 to 4 so that the answer with highest level of risk received the highest score. In order to examine the difference in SCF scores between husbands and wives, a paired-sample *t* test was employed. The results indicated that the mean scores for husbands ($M = 2.70, SD = .57$) were greater than those for wives ($M = 2.30, SD = .67$); however, the scores were not significantly different. Due to the frequency distribution of the SCF scores, a 2-group variable representing risk tolerance levels was created for husbands and wives. This was accomplished by recoding the answers “not willing to take any financial risk” and “take average financial risk” into one variable coded as 0 = “average or below.” The answers “take above average risk” and “take substantial risk” were combined and coded as 1 = “above average.” The mean scores and standard deviations for the 2-group variable were as follows: $M = .61, SD = .49$ for husbands and $M = .34, SD = .47$ for wives. Finally, by combining each aggregation of the level of a couple’s risk, a 4-category variable demonstrating couple’s risk tolerance was created. Percentages and frequency distribution for the computed risk tolerance variable of the husband and wife are found in Table 2.

In the first hypothesis, the independent variable, level of assertiveness, was measured by the Financial DNA® Path 6 Profile. This profile generates a numerical score rang-

ing from 20 to 80. Higher scores represent higher levels of assertiveness; lower scores reflect lower levels of assertiveness. Covariates used in the analysis were couple’s ages, levels of education, and relative income. The variable, couple’s age, was created because there was typically a high correlation between the ages of each husband and wife. This was accomplished by calculating a mean score of their ages. The levels of education were coded as university graduate or not.

The dependent variable in the second hypothesis was portfolio risk level. An overall mean rating for wives ($M = 2.16$) and husbands ($M = 2.20$) was computed by obtaining the mean scores across all five raters. Using these data, it was then possible to create a 3-category variable, portfolio risk level, based on the means obtained for each of the husbands and wives. This variable was coded identically for husbands and wives as follows: (< 1.7 rating = -1) – conservative, (≥ 1.7 and < 2.8 rating = 0) – moderate, (≥ 2.8 rating = 1) – aggressive. Finally, a 3-category couple’s portfolio risk level was created by obtaining the mean rating levels of the husband’s and the wife’s portfolio risk level and coding for the variable were as follows: ($< 1.7 = -1$) – conservative, (≥ 1.7 and $< 2.8 = 0$) – moderate, and ($\geq 2.8 = 1$) – aggressive. The frequency distribution and percentages of the portfolio risk level variable are shown in Table 3.

Table 2. Couples’ Risk Tolerance Level ($N = 110$)

Risk tolerance level	<i>n</i>	%
Husband and wife both average or below	23	20.9
Wife above average, husband average or below	44	40.0
Wife average or below, husband above average	14	12.7
Husband and wife both above average	29	26.4

Table 3. Frequencies and Percentages for Couples’ Portfolio Risk Level ($N = 110$)

Couple’s portfolio risk level	<i>n</i>	%
$1 < 1.7$	26	23.6
$1.7 \leq 2.8$	56	50.9
> 2.8	28	25.5

The independent variables in the third hypothesis were the couple's ages, husband's relative income, wife's relative income, couple's asset ownership, levels of education, and the wife's cohort. The husband's and wife's relative income variable was created by asking what percentage of the family's total income was attributed to each participant. A 3-category variable representing couple's asset ownership was created and coded as follows: husband's assets < wife's assets – couple's asset ownership = -1, husband's assets = wife's assets – couple's asset ownership = 0, and husband's assets > wife's assets – couple's asset ownership = 1. Community property or jointly owned property was divided equally between the husband and wife. The education variable was based on whether or not the respondent had completed a university degree. The education variable was recoded into a 2-category variable: less than or equal to an associate's degree/trade school degree and university degree or higher. The wife cohort variable was based on previous research that reported differences in assertiveness for women who came of age (19-20) between 1931 - 1945, 1946 - 1967, and 1968 - 1993. There were no participants in the sample of women who came of age between 1931 - 1945; however, the sample did include women who came of age between 1994 - 2002. Even though previous researchers have not studied this latter group, it was included in this analysis as an exploratory examination of this cohort. In order to use this cohort variable as it related to assertiveness, a 3-category wife cohort variable was created. Cohort 1 included women who turned 19-20 between 1946 - 1967, cohort 2 included women who turned 19-20 between 1968 - 1993, and cohort 3 included women who turned 19-20 between 1994 - 2002.

Model

Since the goals were (a) to determine whether assertiveness affects financial risk tolerance and portfolio risk level and (b) to determine the factors that have significant relationship with assertiveness, a 2-stage analysis was performed on the panel data. In the first stage, multinomial logit models (McKelvey & Zavoina, 1975) were used to investigate the effects of assertiveness on financial risk tolerance and portfolio risk. Because the financial risk tolerance and portfolio risk of the couples were coded in a discrete categorical fashion, the goal of which was to determine how assertiveness affects the levels of these couple's risks, a logit model was the appropriate analytical approach. The couples were considered the unit of analysis and assertiveness was used as the explanatory variable to investigate the two types of risks. Two multinomial logit models of the following form were estimated in order to

determine the probability that couple c will choose alternative Financial Risk level k in equation (1) and alternative Portfolio Risk level k in equation (2).

(1) Probability (FINAN_RISK)_{ck} =

$$\frac{\exp(\beta'_k X_c)}{\sum_{l=1}^m \exp(\beta'_l X_c)} = \frac{1}{\sum_{l=1}^m \exp[(\beta_l - \beta_k)' X_c]}$$

(2) Probability (PORTFOLIO_RISK)_{ck} =

$$\frac{\exp(\beta'_k X_c)}{\sum_{l=1}^m \exp(\beta'_l X_c)} = \frac{1}{\sum_{l=1}^m \exp[(\beta_l - \beta_k)' X_c]}$$

where X_c is a $c \times m$ matrix of c couples and m covariates.

Two versions of each of the above models were estimated: one with assertiveness and other covariates including couple's ages, education, couple's asset ownership, husband's and wife's relative income and second with only assertiveness. Maximum Likelihood Estimation (MLE) was performed on the multinomial logit models using the CATMOD procedure in SAS.

In the second stage of the analysis, a balanced Multivariate General Linear Model (GLM) was performed with assertiveness (husband and wife) representing the dependent variable and gender as the within-subjects factor as equal number of cases for both the husbands and wives are present in the dataset. This modeling procedure estimates regression analysis and analysis of variance for multiple dependent variables, i.e., assertiveness of husbands and assertiveness of wives, and tests the null hypotheses about the effects of the covariates on the means of various groupings of a joint distribution of the two dependent variables. The between-subjects factors included education (husband and wife), couple's asset ownership (wife owns more, equal ownership, husband owns more), husband's relative income, wife's relative income, and wife's cohort.

(3)

$$(ASSERT)_c = \beta_0 + \beta_1 \times (EDUCATION)_c + \beta_2 \times (COUPLE_ASSET_OWNERSHIP)_c + \beta_3 \times (HUSBAND_INCOME)_c + \beta_4 \times (WIFE_INCOME)_c + \beta_5 \times (WIFE_COHORT)_c + error$$

Where $c = 1, 2, \dots, C$ are the number of couples

ASSERT = $c \times 2$ matrix to indicate the level of assertiveness for husband and wife

EDUCATION = Education level of husband and wife

COUPLE_ASSET_OWNERSHIP = Asset ownership

HUSBAND_INCOME = Husband's relative income

WIFE_INCOME = Wife's relative income

WIFE_COHORT = Wife's cohort

Results

Descriptive Statistics

The descriptive statistics for the dependent variables, the independent variables, and ages for males and females are dis-

played in Table 4. Findings related to educational attainment showed that 85% of the husbands and 65% of the wives were university graduates. The frequency distribution and percentages for the wife cohort variable were as follows: cohort 1 (1946 – 1967), 21% ($n = 23$); cohort 2 (1968 – 1993), 63% ($n = 69$); and cohort 3 (1994 – 2002), 16% ($n = 18$). With respect to differences in the couple's asset ownership, 45% of the spouses reported that their assets were jointly owned ($n = 50$), 15% reported that the wife owned more assets ($n = 17$), and 40% reported that the husband owned more assets ($n = 43$). The comparison between the assertiveness of husband and wife, age, and income in the sample are shown in Table 5. Comparing means using a *t*-test suggested that on average, husbands are more assertive, older, and have more relative income than the wives in the sample.

Table 4. Means and Standard Deviations for Dependent and Independent Variables ($N = 110$)

	Couples		Women		Men	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Dependent variables						
Couple's risk tolerance	2.50	.45				
Portfolio risk level	2.18	.61				
Assertiveness			51.05	9.46	54.48	10.28
Independent variables						
Age	48.50	12.75	47.35	12.48	49.66	13.32
Relative income			25.28	27.12	77.63	23.43

Table 5. Differences in Assertiveness, Age, and Income Between Husbands and Wives

	<i>M</i>	<i>t</i>	<i>p</i>
Assertiveness			
Wife	51.05	-2.591	.0110*
Husband	54.48		
Age			
Wife	47.35	-6.024	.0001***
Husband	49.66		
Relative Income			
Wife	25.28	-11.721	.0001***
Husband	77.63		

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

The Effect of Assertiveness on Financial Risk Tolerance

Prior to estimating the multinomial logit model to examine the impact of assertiveness on financial risk tolerance, a correlation analysis was performed with the dependent variable (financial risk tolerance/above or below average, male and female) and the independent variables (assertiveness-H, assertiveness-W, couple's ages, education, couple's asset ownership and relative income). A significant positive correlation was found between the wife's assertiveness and the couple's ages, $r (.22)$, $p < .02$. A significant negative relationship was found between the wife's assertiveness and the husband's relative income, $r (-.24)$, $p < .01$. Estimation of equation (1) yielded no significant effect of assertiveness on financial risk tolerance. Therefore, the hypothesis (H1) that assertiveness is a predictor of financial risk tolerance was not supported.

The Effect of Assertiveness on Portfolio Risk Level

To test the second hypothesis, correlation analysis was performed with the dependent variable (couple's portfolio risk level) and the independent variables (assertiveness-H, assertiveness-W, couple's ages, education, couple's asset ownership and relative income). Results showed no significant correlations existed. Finally, estimation of equation (3) yielded no significant effect of assertiveness on portfolio risk level. Therefore, the hypothesis (H2) that assertiveness was a predictor of portfolio risk level was not supported.

Effects of Education, Couple's Asset Ownership, Gender, Husband's and Wife's Relative Income, and the Wife's Cohort on Assertiveness

Estimation of equation (3) suggested that tests of within-subject effects and within-subjects contrast showed no significant interaction between gender and any of the predictor variables (see Table 6).

However, tests of between-subjects effects showed a significant main effect for couple's asset ownership ($F = 3.33$, $p < .04$) and for the wife's cohort ($F = 5.35$, $p < .006$). Differences in assertiveness between husband and wife were predicted by two factors: (a) whether the wife possessed more assets than the husband, or vice versa and (b) the cohort during which the wife came of age. Therefore, H3 that higher levels of education, couple's asset ownership, gender, and the wife's cohort will have a positive relationship on the assertiveness of the husband and wife was partially supported. The profile plots shown in Figure 1 display the mean differences between assertiveness and couple's asset ownership. The profile plots shown in Figure 2 display the mean differences between levels of assertiveness and the wife's cohort.

In addition, husbands married to women who own more assets demonstrated a significantly higher assertiveness score than husbands who were married to women that

Table 6. Effects of Covariates on Assertiveness

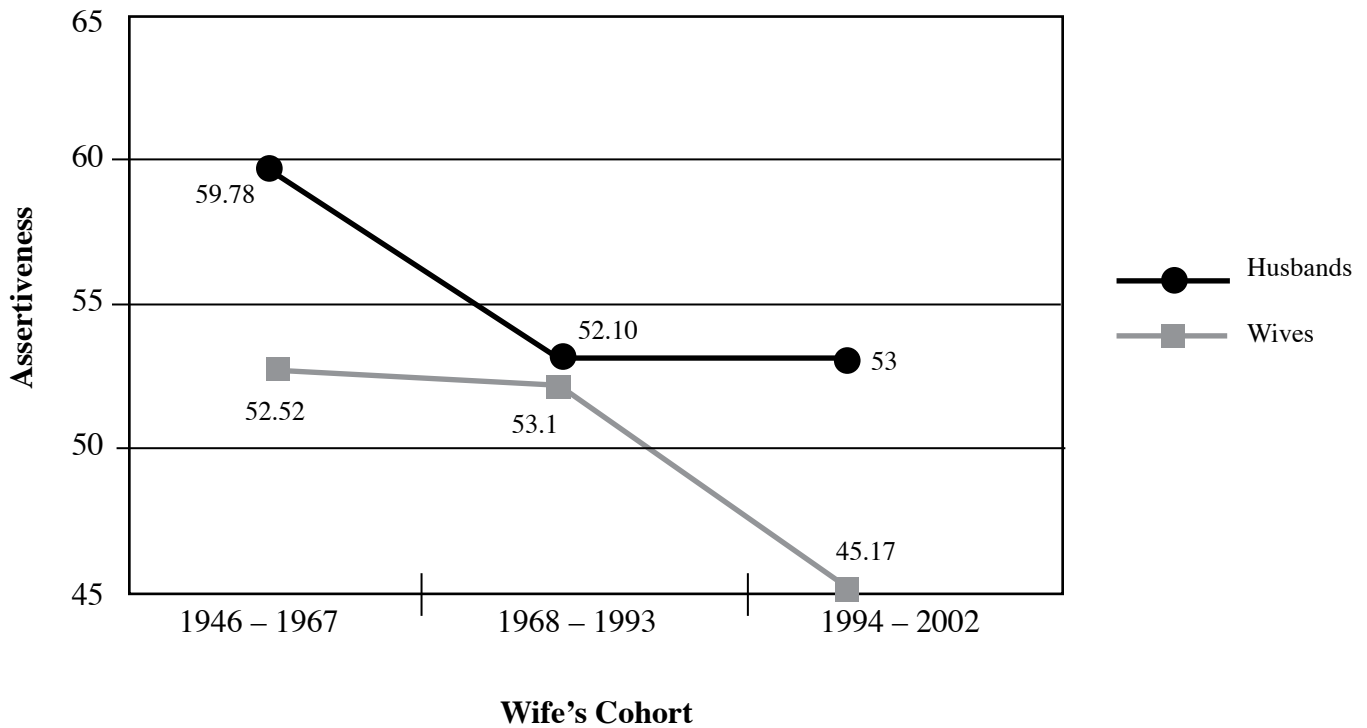
Source	Type III Sum of squares	<i>M</i>	<i>F</i>	<i>p</i>
Intercept	16062.246	16062.246	183.674	.001***
Wife's education	69.366	69.366	0.793	.375
Husband's education	5.242	5.242	0.060	.807
Couple's asset ownership	582.557	291.279	3.331	.040*
Wife's cohort	936.930	468.465	5.357	.006**
Couple's age	0.418	0.418	0.005	.945
Wife's income	3.557	3.557	0.041	.841
Husband's income	0.535	0.535	0.006	.938
Error	8744.987	87.450		

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Figure 1. Assertiveness by Couples' Asset Ownership



Figure 2. Assertiveness by Wife's Cohort



share equal ownership of assets ($t = 1.98, p < .05$) (see Table 7). Further, wives who are in a marriage where the wife owns more assets had a significantly higher assertiveness score than wives who are married to men that share equal ownership of assets ($t = 2.61, p < .01$), as well as wives who are in a marriage where the husband owns more assets ($t = 2.15, p < .03$) (see Table 7). Overall, the wife's assertiveness was significantly less than that of her husband's when her assets are less than the husband's assets

($t = -2.46, p < .02$), but this difference became insignificant when both wife and husband have equal assets ($t = -1.23, p < .23$) and when the wife's assets are more than that of her husband ($t = -.90, p < .38$) (see Table 8).

It was anticipated that the wife's assertiveness would increase between cohorts 1 (1946 -1967) and 2 (1968 - 1993), but these differences were not found to be significant ($t = 0.19, p < .85$). However, there was a significant

Table 7. Comparing Assertiveness by Couples' Asset Ownership

Assertiveness comparison	<i>t</i>	<i>p</i>
Husbands married to women when the wife owns more assets versus husbands who are married to women that share equal ownership of assets	1.98	.05*
Husbands married to women when the wife owns more assets versus husbands that are married to women when the husband owns more assets	1.21	.23
Husbands who are married to women that share equal ownership of assets versus husbands that are married to women when the husband owns more assets	-1.17	.24
Wives who are in a marriage where the wife owns more assets versus wives who are in a marriage that share equal ownership of assets	2.61	.01**
Wives who are in a marriage that share equal ownership of assets versus wives who are in a marriage where the husband owns more assets	-.36	.72
Wives who are in a marriage where the wife owns more assets versus wives who are in a marriage where the husband owns more assets	2.15	.03*

Note. The positive/negative direction of the *t*-value signifies how high/low the value of the first entity in comparison to the second entity. Therefore, the first entry suggests that husbands married to women who own more assets have a higher assertiveness than husbands who are married to women that share equal ownership to assets.

* $p \leq .05$. ** $p \leq .01$.

Table 8. Comparing Wife's Assertiveness with Husband's Assertiveness by Couples' Asset Ownership

Couple's asset ownership type	Assertiveness	<i>M</i>	<i>t</i>	<i>p</i>
When wife's asset is more than husband's asset	Wife	56.24	-.90	.379
	Husband	58.35		
When both wife and husband have equal assets	Wife	49.76	-1.23	.230
	Husband	52.58		
When husband's asset is more than wife's asset	Wife	50.49	-2.46	.018*
	Husband	55.16		

* $p \leq .05$.

Table 9. Comparing Assertiveness by Wife's Cohort

Assertiveness comparison	<i>t</i>	<i>p</i>
Husbands married to women whose cohort is 1946 - 1967 versus husbands married to women whose cohort is 1968 - 1993	2.73	.007**
Husbands married to women whose cohort is 1968 - 1993 versus husbands married to women whose cohort is 1994 - 2002	.04	.970
Husbands married to women whose cohort is 1946 - 1967 versus husbands married to women whose cohort is 1994 - 2002	2.33	.020*
Women whose cohort is 1946 - 1967 versus women whose cohort is 1968 - 1993	.19	.850
Women whose cohort is 1946 - 1967 versus women whose cohort is 1994 - 2002	2.85	.006**
Women whose cohort is 1968 - 1993 versus women whose cohort is 1994 - 2002	2.84	.007**

Note. The positive/negative direction of the *t*-value signifies how high/low the value of the first entity in comparison to the second entity. Therefore, the first entry suggests that husbands married to women whose cohort is 1946-1967 have a higher assertiveness than husbands who are married to women whose cohort is 1968 - 1993.

* $p \leq .05$. ** $p \leq .01$.

difference ($t = 2.84, p < .01$) between the women of cohort 1 (1946 - 1967) and cohort 3 (1994 - 2002) as well as a significant difference ($t = 2.85, p < .01$) between cohorts 2 (1968 - 1993) and 3 (1994 - 2002). While these findings do not support Twenge's (2001) findings, they do reveal several interesting changes in the assertiveness level based on the cohort of the wife. First, the assertiveness levels of men who are married to women in cohort 1 (1946 -1967) were significantly higher than men who were married to women in cohort 2 (1968 - 1993) ($t = 2.73, p < .007$) and cohort 3 (1994 - 2002) ($t = 2.33, p < .02$). Second, women who belong to cohort 1 (1946 - 1967) and cohort 2 (1968

- 1993) have significantly higher assertiveness than women who belong to cohort 3 (1994 - 2002) ($t = 2.84, p < 0.006$ and $t = 2.85, p < .01$, respectively). These findings are reported in Table 9.

In an examination of the differences between the husband's and wife's assertiveness, wife's assertiveness was found to be significantly less than that of her husband in cohort 1 (1946 - 1967) ($t = -2.63, p < .01$) and in cohort 3 (1994 - 2002) ($t = -3.06, p < .007$) but not in cohort 2 (1968 - 1993) ($t = -0.58, p < .56$). These findings are reported in Table 10.

Table 10. Comparing Wife's Assertiveness with Husband's Assertiveness by Wife's Cohort

Wife's cohort type	Assertiveness	<i>M</i>	<i>t</i>	<i>p</i>
1946 - 1967	Wife	52.52	-2.63	.010**
	Husband	59.78		
1968 - 1993	Wife	52.09	-.58	.560
	Husband	53.10		
1994 - 2002	Wife	45.17	-3.06	.007**
	Husband	53.00		

* $p \leq .05$. ** $p \leq .01$.

Sampling Issues

Since the panel consists of only 110 couples, concerns may exist regarding the validity of the results due to sample size. In particular, the coefficient standard errors reported in Table 6 rely on asymptotic approximations and may not be reliable for a sample size of 110. Therefore, two separate tests were performed to determine whether the sample size was adequate for the investigation and whether the results will vary with sample size. First, a power analysis was performed to determine the statistical power of the study, and second, a bootstrapping sampling (Efron, 1979) was done to simulate a larger sample size and reanalyze the general linear model shown in equation (1).

Power analysis based on the number of predictors (7) observed a coefficient of determination of 0.12 and the sample size of 110 gave a power value of 0.80. Therefore, sample size was not an issue in the study. For the second investigation with the bootstrapping sampling technique, 10,000 bootstrap replicates were simulated and the bias, i.e., the difference between the averaged bootstrapped value of the estimate and the original sample value, along with the bootstrap estimates of standard error, were examined. Both the bias and the standard error for all the covariates were found to be close to zero suggesting that the asymptotic assumptions made for the models were indeed accurate and the sample size of 110 was reasonable.

Discussion

The first two hypotheses examined whether changes in individual assertiveness would extend to couple behaviors in a financial planning context. It was hypothesized that the changes occurring in social roles would increase the level of assertiveness, thereby increasing the level of financial risk tolerance, which would then manifest itself in the level of risk taken in the participant's portfolio. These changes were hypothesized to be the result of increased educational attainment, couple's asset ownership, and husband's and wife's relative income, all of which are attributes associated with higher degrees of assertiveness. As a result, assertiveness was used as a proxy for an agentic dimension, which Eagly (1987) described as a characteristic that is more associated with a traditional male role.

Although neither H1 nor H2 was supported, several interesting findings are reported regarding H3. The first finding worth exploring is the impact of the couple's asset ownership on the levels of assertiveness for husbands and wives. As supported by the literature (Eagly, 1987), the husband's level of assertiveness was greater than the wife's. How-

ever, as previously stated, the results of the survey indicate that asset ownership has a significant impact on husband's and wife's assertiveness. This was indicated by higher assertiveness scores for both the husband and the wife when the wife owned more assets than the husband. Conversely, when the husband owned more assets than the wife, both of their scores were lower even though the husband still had significantly higher scores than the wife.

The findings of this study lead to three important questions: (a) Why is there a significant difference in assertiveness between the husband and wife when the husband owns more assets than his wife?, (b) Why is the assertiveness of the wife greater when the wife owns more assets than when she owns less than her husband?, and (c) Why would the assertiveness of both the husband and wife be greater when the wife owns more of the assets than when there is equal ownership?

The first question could be answered by what Eagly (1983) referred to as the legitimacy bestowed upon a spouse because of the traditional hierarchical role in our society. The difference in assertiveness between the husband and wife disappears when there is equal ownership or when the wife owns a greater amount of assets than her husband. This can also be explained by social role theory in that the reason the wife owns more assets is due to having a higher degree of education thereby obtaining a higher status career and making a greater amount of income. It could be suggested that this is a partial explanation of the answer to the second and third questions as well. While the research did find asset ownership as a significant covariate, the same cannot be said of education and income. Perhaps a reason for this is due to the fact that 72% of the women in this study had a college degree or that the relative income amount (the amount of income that the wife makes as a percentage of the total family income) as opposed to the actual dollar amount did not accurately assess the income variable to determine if higher incomes were significant.

While the answer to the third question may be partially indicated by the ownership of assets, perhaps egalitarian asset ownership status, or husbands and wives who are in nontraditional roles, may be prone to exhibit greater degrees of assertiveness. Possibly, this is due in part to the assertive dimension of the wife being related to her higher wealth status. This conclusion can only be tested by further examination of additional data dealing with job status and more detailed information on income and the sources of wealth owned by each spouse.

Additionally, there was not a significant difference between the wives in cohort 1 (1946 – 1967) and cohort 2 (1968 – 1993); the difference in assertiveness between spouses in cohort 1 and cohort 2 does support the findings of Twenge (2001). Based on her work, the researchers would have expected to find a significant increase in assertiveness between the wives in cohort 1 and cohort 2 due to the time in which they came of age. Previous literature (Eagly, 1987; Twenge, 2001) would suggest that the changes in women's social roles would be the reason there is no significant difference between the husband's and wife's social roles in the second cohort. However, the findings of the current research were contrary to the previous literature in that a decrease was found in the husband's assertiveness, while the wife's assertiveness showed no significant change when compared to the couples in cohort 1.

Finally, the difference in the assertiveness of women between cohort 1 and 2 versus the women in cohort 3 was unexpected. A further examination of the third cohort (1994 – 2002) found that 42 of the 49 women (85.7%) were all from the same three-digit zip code area, which could bias the finding. The area of the country from which the cohort is drawn is generally quite conservative and is likely more traditional in terms of social roles than other areas of the United States. On the other hand, it is possible that as women age, their assertive tendencies increase.

Several potential limitations may have impacted the findings in this research. First, the SCF measure of financial risk tolerance may not have been as comprehensive a measure for financial risk tolerance as needed for the analysis. This has been debated by academics in several studies (Chen & Finke, 1996; Grable & Lytton, 2001; Hanna & Chen, 1997; Hanna, Gutter, & Fan, 2001). Second, since the asset allocation of the portfolio was self-reported, the accuracy of the data may not have reflected the true levels of risk in each participant's portfolio. To solve this potential limitation, perhaps more accurate information could be obtained from participants if actual financial documents could be used in the determination of the risk levels in each portfolio. In this scenario, a means variance approach could be used to determine portfolio risk. However, confidentiality issues might prevent this type of information from becoming readily available.

Conclusions and Implications

The primary findings of the current research concern the predictors of assertiveness based on demographic data,

a couple's asset ownership, and the cohort within which women came of age. The findings are supported by previous research on social role theory (Eagly, 1983; Twenge, 2001) and extend that research by analyzing a more recent sample. While the findings did not support assertiveness as a predictor of either financial risk tolerance or portfolio risk level, there is still reason to further examine this behavioral characteristic in future research. As society changes and differing attitudes toward social roles evolve, it is reasonable to anticipate that these changing roles for husbands and wives will carry forward to other aspects of lives including finances.

The findings provide potential implications for financial professionals in the way they approach communication with their client couples. Awareness of a couple's traits during the initial discovery meetings with clients could provide financial planners with additional insights into the couple's decision-making process. Consider the following example: A planner is meeting with a couple beginning their retirement at age 65 and knows that the wife has a larger degree of personally owned assets than her husband. The planner also learned in the initial discovery meeting that the wife had an advanced degree and had earned a significant income during her working years. Based on the finding of this research, the financial planner may want to be attentive to the husband's degree of assertiveness, while at the same time understanding that the wife, due to her cohort, education and financial contribution to the family, may also exhibit a near equal amount of assertiveness. Consider another example. In advising a younger couple in which the husband owns a greater degree of assets than his wife, the financial planner should be aware that the couple might follow a more traditional hierarchical role in which the husband makes the financial decisions demonstrating more assertive behavior. This assertiveness could manifest itself in the husband's need for control in making financial decisions. This is in support of previous research regarding a traditional social role perspective in that the male role has generally assumed the responsibility for financial matters, and the female role assumed domestic responsibilities (Luepnitz, 1988; Regan & Sprecher, 1995). In comparison, imagine a financial counselor or planner advising a couple who were mid-to-late baby boomers and own all of their assets equally. An egalitarian approach by the planners in presenting information and asking for decisions might be appropriate. Financial counselors and planners should consider these kinds of characteristics when communicating with their clients.

Future research should continue examining the behavioral characteristic of assertiveness to determine its usefulness and its implications for dealing with clients. The use of focus groups would provide more in-depth data that might result in more meaningful findings. Future research should also involve the development of a comprehensive measure of financial risk tolerance that is widely accepted and frequently used so that researchers will have access to an abundance of data. There are many dimensions to financial risk tolerance, and to date, no single risk tolerance measure that considers the capacity of this construct has been universally accepted. The development of such a comprehensive measure will allow individuals, couples, financial planning professionals, and researchers to more accurately assess this important dimension of an individual's financial plan, and thereby more competently plan for the future.

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Endnotes

¹A glossary of the words used in the Path 6 Profile is available from John Gilliam.

²A copy of the profile can be obtained from John Gilliam.