Determinants of Family Bond And Stock Holdings

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This study examined characteristics of individual bond and stock holders, using data from the 1989 Survey of Consumer Finances. The results of the tobit models showed bonds and stocks are more likely to be held by families with adequate financial resources to maintain daily lives and enough funds to meet short term financial needs. Households having a financial planning horizon of ten years or more higher amounts of bonds and of stocks. Reporting a saving motive of "growth" was associated with higher stock holdings, but reporting a saving motive of "retirement" was not associated with higher bond or stock holdings. Controlling for income and other variables, stock and bond holdings increased with education and were higher for whites than for nonwhites.
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Bonds and stocks are two important financial instruments in family investment decisions (Garman & Forgue, 1994). According to a recent survey, the median value of stocks, bonds, and non-taxable bonds held by American households were $6,200, $12,500, and $52,900, respectively (Kennickell & Shack-Marquez, 1992). While the ownership of these instruments were modest across all households, the proportion of owning stocks and bonds increases rapidly as household income levels increase. For example, only 2% of households with income less than $10,000 held stocks, but 16.9% of households with income between $20,000 and $29,999, and 44.6% of households with income of $50,000 or higher did so (Kennickell & Shack-Marquez, 1992). These facts imply that families would increase their demand for stocks and bonds when their incomes increase. For family financial planners and counselors, information about characteristics of individual bond and stock holders would be helpful to better understand client requests, and more effectively serve their needs.

There have been a number of behavior of individual investors (Baker & Haslem, 1974; Kreinin, 1958; 1959; Lease, Lewellen & Schlarbaum, 1974; 1976; Ramaswami, Srivastava & McInish, 1992). However, these studies had dated and/or biased samples. Almost all of the existing studies were conducted two decades ago or earlier. The study with the most recent data (Ramaswami, Srivastava & McInish, 1992) used a sample of households with income over $25,000.

This study attempts to fill some of gaps of the previous literature. This study uses the most recent survey data that was collected in 1989. The dataset was nationally representative, including all income levels of the U.S households. More importantly, this study attempts to examine the bond and stock behavior under the context of household asset portfolios, and explore the meaning of bonds and stocks in family financial decisions. This study not only investigates which consumers hold bonds and stocks, but also explores why they choose these instruments.

The Literature

The literature review includes three parts. The first part reviews relevant theoretical models of saving and investing that might provide guidelines for empirical investigations, and empirical studies that examined the relationship between holdings of bonds and stocks, and household asset portfolios. The second part examines factors associated with holdings of bonds and stocks that were identified in previous studies. Part three summarizes the literature review.

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Bonds and Stocks in Household Asset Portfolios
The most influential models of saving are the life-cycle hypothesis (Modigliani, 1986) and the permanent income hypothesis (Friedman, 1957). However, these models provide little guidelines for examining the bond and stock behavior, since the models assume that asset categories are perfectly substitutable (the fungibility assumption.) According to this assumption, a dollar of savings in bonds can be exchangeable freely to a dollar of savings in checking account. Thus, these models do not assume that bonds and stocks have meanings that are different from other financial instruments in family financial decisions.

The third extensively cited model focuses on investment (Markowitz, 1952), assuming the objectives of investment are to maximize the expected returns and minimize the variability of returns (risks). However, empirical evidence shows that household investment objectives were more complex than ones predicted by Markowitz's theory. Households may set aside funds for categorical objectives such as current income, retirement, bequest, education, emergencies, and tax avoidance (Barlow, Brazer & Morgan, 1966; Thaler, 1980). Katona (1960) observed that savings may be related to consumption needs associated with varying horizons and uncertainty over the life cycle. Potter (1971) provided evidence supporting multiple savings objectives. Families had different likelihoods in reporting different savings objectives when their demographic characteristics, especially their financial resources differed (Xiao & Noring, 1993). Consequently, the choice of bonds and stocks made by consumers may be based on more than reasons of return maximization and risk minimization. The framework that may offer the best insights on family bond and stock behavior is the behavioral life-cycle hypothesis (Shefrin & Thaler, 1988). This model assumes that consumers are using a "mental accounting" system. Consumers would treat various asset categories differently in achieving their multiple financial goals. This notion is supported by some empirical evidence (Xiao & Olson, 1994). Incorporating Maslow's (1954) theory of human needs hierarchy into the behavioral life-cycle hypothesis, Xiao and Olson found that consumers' propensities to save in different accounts were different, as predicted by the behavioral life cycle hypothesis. Xiao & Anderson, (1993) also found that bonds and stocks met higher levels of higher levels of financial needs than did other types of financial assets.

In this study, the behavioral life-cycle hypothesis will be used as the framework to interpret findings. The meanings of bonds and stocks in household asset portfolios will be explored based on the results of previous studies and new findings in this study.

Factors Affecting Bond and Stock Holdings Factors that could influence holdings of bonds and stocks include three sets of variables, based on previous studies. They are demographic characteristics, financial resources, and socio-psychological variables.

Demographic characteristics that differentiate bond and stock holdings are age, education attachment, marital status, gender, and race of household heads. Previous studies have found a positive relationship between age and ownership of stock holdings (e.g., Kreinin, 1959). However, older investors have been found to be more conservative in their investment behavior, and they tend to have a more diversified portfolio containing fewer high-risk assets (Baker & Haslem, 1974; Lease, Lewellen & Schlarbaum, 1974; Lewellen, Lease & Schlarbaum, 1977).

Individuals with higher educational levels were more likely to own stocks and other investment instruments, but education had no effect on the dollar values of these instruments after income was controlled (Kreinin 1958; 1959). Consumers with four or less years of high school were more likely than their higher educational counterparts to stress the importance of price stability (Baker & Haslem, 1974). The portfolio share for stocks or bonds was similar for married couples and single men, but single women displayed somewhat different preferences in terms of financial assets (Haynes & Helms, 1992). Male consumers were more likely than females to invest in real estates, common stocks, and corporate bonds, but females were more likely to own government bonds (Haynes & Helms, 1990). An earlier study indicated that older females were especially conservative, diversified, and dividend-oriented (Lease, Lewellen & Schlarbaum, 1976). Females were more likely than males to emphasize the importance of expected dividend yield and price stability (Baker & Haslem, 1974). Nonwhites were less likely to own liquid assets than whites (Kreinin, 1959).

Variables regarding family financial resources include income and wealth. The proportions of stock ownership rose with increasing income levels, and income also had positive effect on dollar values of stocks owned (Kreinin, 1959). Income influenced sensitivity to dividend yield, liquidity, capital appreciation, and risk (Baker & Haslem, 1974). When levels of wealth went up, the proportions of owning risky assets increased, which yielded strong evidence of decreasing relative risk aversion (Cohn, Lewellen, Lease & Schlarbaum, 1975). Wealthier individuals were more conscious of hedging inflation, earning maximum interest, sheltering income from taxes, and leaving an inheritance (Katona, 1960). Income and net worth showed positive effects on holdings in stocks and bonds in a more recent study (Ramaswami, Srivastava & McInish, 1992).

Socio-psychological factors that influence holdings of bonds and stocks are expectation variables and saving motives. Consumers who had more optimistic views of future economy and personal financial situations were more likely, than their less optimistic counterparts, to be owners of stocks (Kreinin, 1959). Claycamp (1963) investigated effects of reported saving motives on the ratio of variable-dollar assets to all assets, and found only one, saving for purchase, that showed a negative effect. A recent study indicated that reported saving motives affected shares of bonds and stocks and other household asset categories out of total paper assets (Xiao & Anderson, 1993). Evidence from a sample of older consumers showed that reported saving motives had negative effects on savings in stock accounts (Xiao & Malroutu, 1994).

Summary

The literature review indicated that bonds and stocks, like other financial instruments, may have special meanings for family financial decisions. In other words, these instruments may be used to achieve some specific goals of families. Based on previous studies, factors that might influence family bond and stock holdings are demographic variables, such as age, education attachment, marital status, gender, race; financial resource variables, such as income and wealth; and socio-psychological variables, such as expectations for future economy and personal financial situations and saving motives. These variables, among some others, will be included in the data analyses of this study.

Data and Methodology

Data

The data for this study were drawn from the 1989 Survey of Consumer Finances. Sponsored by the Federal Reserve System and five other government agencies, this survey collected detailed information on the financial situation of households through personal interviews. Households balance sheets, other financial indicators such as loans and credit use, and socio-economic characteristics of households are available from this survey. The sample for this study consisted of 3,143 households. An over-sampling of wealth households from tax data files was used to ensure a sufficiently large and unbiased sample.

Dependent Variables

Two dependent variables were examined in this study:

1. The dollar values of bond holdings. Government savings bonds and other corporate, municipal, and government bonds were included.
2. The dollar value of stock holdings.

Independent Variables

Three groups of independent variables: socio-demographic, financial, and psychological variables, were included in this study. Socio-demographic variables included educational levels, age, gender, marital status, and race of the household head. Age, income, and education were three continuous variables. Marital status was a dummy variable coded as 1 if married, 0 if not. Males were coded as 1 and females as 0. Whites were coded as 1 and nonwhites were coded as 0. Financial variables included the level of income, checking amount and savings amount. There were also dummy variables for ownership of IRA, Money Market, CDs, mutual fund, other accounts, cash value of life insurance, any other saving plans, other assets, a home.

Five psychological variables were: expectation for economy, expectation for interest rates, expectation for family income, saving motives, and financial planning horizon. The question asked about the expectation for future economy was worded as "Over the next five years, do you expect the U. S. economy as a whole to perform better, worse, or about the same as it has over the past five years?" In this study, performing better was coded as 1 and the other two answers were combined. The question asked about the expectation for interest rates was worded as "Five years from now, do you think interest rates will be higher, lower or about

the same as today?" Higher was coded as 1 and the other two answers were coded as 0. The question asked about the expectation for family income was worded as "Over the next five years, do you expect your total family income to go up more than prices, less than prices, or about the same as prices?" More than prices was coded as 1 and the other two answers were coded as 0. The survey asked the respondents "What is the most important reason for saving?" The reasons were recoded as for daily use, for emergency, for purchases, for retirement, for children, and for growth. Financial planning horizon was classified as planning for next few months, next few years, and longer than ten years.

Analysis

The Tobit model was used for the analyses. Tobin (1958) designed Tobit analysis for estimating equations with dependent variables that are continuous over some range, but truncated at either the upper or lower end, or both. Tobit uses all observations, both those at the end and those above or below the end, to estimate a regression line. In general, it is preferred over alternative techniques that estimate a line only with the observations above or below the limit. Therefore, Tobit provides more efficient estimates of parameters and more accurate estimates of the expected value of the dependent variable than can be obtained from OLS regression models when the dependent variable is truncated. In this study, some households did not hold any stocks or bonds, therefore, Tobit was used in the analysis. The results were generated from the entire sample and the likelihood estimates were the probabilities of bond or stock holdings for all of the individuals regardless of the ownership of investments.

Results

Descriptive Statistics

Table 1 outlines the demographic characteristics of the entire sample and two subsamples for bond holders and stock holders respectively. In the weighted sample, 28% of the households held bonds and 19% held stocks.

The median income of the entire sample was $36,000 versus $70,000 for bond holders and $100,000 for stock holders. The average stock holders were relatively wealthier than the general population and bond holders. About 19% of households had income over $50,000. But about 37% of bond holders and 47% of stock holders were from that income group. Although about 44% of households had income of $20,000 or less, only 16% of bond holders and 14% of stock holders were from this group. Therefore, higher income households had much larger investments in bonds and stocks.

Table 1
Characteristics of the Sample and of Households Owning Bonds and Households Owning Stocks, 1989 Survey of Consumer Finances

	Entire sample	Bond holders	Stock holders
Sample size	3,143	1,098	973
Weighted proportion	100%	28%	19%
Family Income			
mean	$35,429	$56,849	$70,648
median	$36,000	$70,000	$100,000
under $5,000	5.8%	0.9%	1.1%
$5,000-9,999	13.1	2.0	0.6
$10,000-14,999	12.4	5.4	4.9
$15,000-19,999	8.7	7.4	6.9
$20,000-24,999	10.4	9.9	7.9
$25,000-49,999	30.4	37.8	32.1
$50,000 over	19.2	36.6	46.5
Education			
mean years	12.4	13.7	14.2
Age			
mean	48.5	47.8	51.5
under 21	0.9%	0.3%	0.0%
21-34	24.8	23.5	15.3
35-44	23.3	29.3	26.0
45-54	14.2	12.7	17.0
55-64	14.5	14.5	17.3
65 over	22.3	19.7	24.4
Gender			
male	71.4%	82.7%	83.9%
female	28.6	17.3	16.1
Marital status			
married	55.1%	72.9%	68.0%
not-married	44.9	27.1	32.0
Race			
whites	75.3%	89.4%	94.0%
nonwhites	24.7	10.6	6.0

Compared to 12.4 year education for the whole sample, stock holders had the highest education (14.2 years). Bond holders are somewhere in between (13.7 years). Among various age groups, more than half (53%) of bond holders were age 21 to 44. Twenty-four percent of stock holders were age 65 and over. The second largest group was age 35 to 44. The mean age for the entire population was 48.5 vs 47.8 for bond holders and

51.5 for stock holders. Stock holders were older than bond holders and the general population. Male constituted about 71% of the entire sample population. However, over 82% of the bond holders and stock holders were males. Female were less likely to invest in bonds or stocks. About 55% of households were married in the entire sample. Seventy-three percent of the bond holders and 68% of the stock holders were married households. Single households had relatively low ownership in stocks and bonds. Nonwhites accounted for 25% of the population. However, only 11% of bond holders and 6% of stock holders were nonwhites. The ownership of stocks for whites was as high as 94% of the stock holders.

Determinants of Bond Holding

The results from tobit analysis on bond holdings are presented in Table 2, Column 2. Bond holdings increased with education. Households headed by a male had higher levels of bond holdings than otherwise similar households headed by a female. Households headed by a white had higher levels of bond holdings than otherwise similar households headed by a nonwhite person.

Income, amount of checking account, amount of savings account, and ownership of several asset categories, such as money market account, CD, savings plans, and being homeowners showed positive effects on bond holdings. Families with higher income, larger amounts in checking and/or savings accounts, and/or owners of aforementioned asset were likely to have higher levels of bond holdings. These findings are consistent with the previous studies (Cohn, Lewellen, Lease & Schlarbaum, 1975; Ramaswami, Srivastava & McInish, 1992).

Only one expectation variable, expectation for future economy, showed a negative effect on bond holdings. This result implies that consumers with a optimistic view of future economy were likely to have lower values of bond holdings. Two saving motives indicated positive effects on bond holdings. Consumers reporting saving for emergency and those reporting saving for children had higher values of bond holdings. This result may imply that some households use bonds for emergency funds and for saving for goals related to children, such as college costs. Consumers who reported a planning horizon of few months had lower values of bond holdings than otherwise similar households with a planning horizon of more than ten years. This result suggests that bond investments are used for long-term family saving and investing goals

Table 2
Tobit Analyses of Amount Held in Bonds and Amount Held in Stocks, 1989 Survey of Consumer Finances

	Bonds	Stocks
education	15032.***	24608.***
age	-1054.	2868.***
male (vs. female)	68876.**	39715.
married (vs. not married)	195285.	69269.
white (vs. nonwhite)	128975.***	106848.***
income (1000s)	175.***	120.***
checking amount (1000s)	141.***	103.***
savings amount (1000s)	290.**	-340.
ownership of IRA	9180.	45063.*
ownership of Money Market	108851.***	100486.***
ownership of CDs	154942.***	34753.
ownership of mutual funds	35362.	86045.**
ownership of other accounts	-18664.	20868.
ownership of life insurance	14682.	58159.**
ownership of savings plans	85058***	39151.
ownership of other assets	42727.	49233.*
ownership of home	100332.***	42167.
expectation for economy	-54041.*	6450.
expectation for interest rates	-2346.	-34701.
expectation for family income	-16511.	-3389.
saving motives:		
daily use	16520.	-76463.
emergency	51930.*	34201.
purchases	40219.	21104.
retirement	48306.	17142.
children	119783.***	8401.
growth	31009.	85826.**
planning horizon (vs. 10 yrs or longer):		
few months	-76818.*	-74974.**
few years	871.	-12154.
log likelihood	-1171.	-7263.*

$p < .05$, $**p < .01$, $***p < .001$

Determinants of Stock Holding

Results of tobit analysis on the characteristics of stock holders can be found in column 3 of Table 2. Education, age, and race influenced the levels of stock holdings. As in the case of bond holdings, family heads who had higher educational levels, and/or were white were likely to have higher levels of stock holdings. Families with older heads were likely to have higher levels of stock holdings, which is consistent with

Kreinin (1959).

Income, amount of checking account, and ownership of IRA, money market account, mutual funds, cash value life insurance, and other assets positively affected stock holdings. Families with higher income, higher values in checking accounts, and ownership of above mentioned assets were likely to have higher values of stocks held. These findings are consistent with previous studies (Kreinin, 1959; Cohn, et al., 1975; Ramaswami, Srivastava & McInish, 1992).

Household with a planning horizon of few months, compared to their counterparts with a planning horizon of more than ten years, were likely to have lower levels of stock holdings. Households with a saving motive for growth were likely to have higher levels of stock holdings than those who did not mention this reason. As expected, growth is an important goal of those investing in stocks.

Comparison between Bond and Stock Holders

There are both similarities and differences in factors affecting bond and stock holdings. Households that were likely to have higher levels of bond and stock holdings were characterized as higher education, white, higher income, larger values in checking accounts, owner of money market accounts, and a more than ten year planning horizon. Some of these characteristics are straightforward, such as education, race, and income. Other factors are not so obvious. Balances in chaecking and saving accounts may indicate resources beyond what current household income would indicate, so that households with large balances may be better able to invest in bonds and stocsk. The significance of planning horizon indicated that bonds or stocks are long-term investments. The relatively higher return on investment of bonds or stocks may encourage households to invest their funds for a relatively long period in order to even out the volatility in bond and stock markets.

Age affected only stock holdings, and gender affected only bond holdings. Some financial variables influenced bond but did not influence stock holdings, or vice versa. Saving motive variables also showed different effects on bond or stock holdings. The differences suggest that these two instruments may serve families' needs differently. The positive effect of age on stock holdings might indicate that investment in stocks is a supplement for retirement funds. Those who owned an IRA were more likely to hold stocks than those who did not own an IRA, which supports the previous proposition. Stocks may also be a favorable investment instrument for households who view the success of investment as personal achievement. The owners of mutual funds, cash value life insurance, other assets, and/or households who reported saving for growth were likely to have higher levels of stock holdings.

Bonds may represent an instrument in achieving a family's more specific and conservative goals. The positive effects of reported saving reasons "for emergency" and "for children" on bond holdings were supportive evidence to the notion.

Discussion

The findings of this study suggested that families invested in bonds and stocks in order to achieve long term goals. The results also imply that bonds and stocks may play different roles in family investment decisions, or may be preferred by consumers with different values and tastes. It seems that stocks were used to achieve more abstract and aggressive financial goals, and bonds for more concrete and conservative goals.

Levels of educational attainment were positively related to bond and stock holdings. Compared with other types of investments such as CDs and savings accounts, investments in bonds and stocks have both higher returns and higher risks. It may require more knowledge and experience in investing in bonds and stocks. Education may have broadened one's exposure to different kinds of financial instruments. Highly educated people are exposed to broader information and it possibly leads to optimal selection. They may also be more capable of managing their portfolios to maximize the return on investment.

The expectations for future interest rates and family income did not affect either bond or stock holdings. The expectation for a better economy negatively related to bond holdings. To explain the effects of expectations, two aspects should be considered. Expectations for future development are usually ahead of consumption or real changes in financial situations. Therefore, the lag between might lead to the inconsistent results. Also, this study only examined

investment holdings at one point of time. The ownership instead of purchasing behavior was analyzed. Individuals who had high future expectations might tend to purchase more bonds or stocks, but not necessarily having a high holding at that time.

Controlling for other factors, whites had higher investments than nonwhites in both stocks and bonds, which is consistent with Kreinin's findings. Kreinin (1959) suggested the degree of exposure to banks and other financial institutions may contribute to the differences in investments between whites and nonwhites. After the tremendous development in financial markets, minority groups may also be exposed to all kinds of investment opportunities. But different culture values, preferences or tastes may affect the investing behavior for minority consumers. For instance, Euro-American culture tends to be future oriented, while other cultures are past or present oriented. Further investigation will be helpful to enhance the understanding of the investment behavior between whites and nonwhites.

Conclusions and Implications

This study examined the factors associated with bond and stock holdings, using the 1989 Survey of Consumer Finances. Tobit results show that demographic, financial, and psychological factors affect the dollar amount of bond and stock holdings. Higher income, higher educational attainment, being white, larger amount on checking accounts, having a Money Market account, and having a financial planning horizon of ten years or more were associated with larger dollar amount of bond or stock holdings. In addition, households headed by men, having larger values in savings accounts, owning CDs, savings plans, and/or home, and reporting saving for "emergency" and/or "children" were likely to have higher levels of bond holdings. Finally, households with older heads, having IRAs, mutual funds, life insurance with cash values, and/or other assets, and reporting saving for "growth" were likely to have larger stock holdings.

Factors associated with bond and stock holdings revealed by the findings are not conclusive. However, the findings suggest that bonds and stocks are more likely to be held by families that have adequate financial resources to maintain daily lives, and have enough funds to meet short term financial needs. The results imply that bonds and stocks are financial instruments to meet families' long term needs. It seemed that as investment instruments for family finance, bonds are to achieve more concrete and conservative goals, and stocks to more abstract and aggressive goals.

Implications for Practitioners

These findings provide implications for practitioners in family financial planning and counseling services. Personal financial counselors and planners might be able to serve their clients better if they understand investors' socio-economic characteristics related to investment decision making. For example, investment strategies may be developed for highly educated families taking consideration of that they may comprehend easily the positive relationship between the return on investment and the risk assumed. But clients with less formal education may need some extra help to better understand the principles.

Financial planning horizon had positive effects on bond and stock holdings. Planning ahead of time is very important to families. The findings from this study showed that households who had planned for next ten years or longer were likely to have higher levels of bond and stock holdings. Given that investments in bonds and stocks yield relatively higher return than many other types of investment, it would be wise if families can plan ahead to invest their available funds into high yield investments such as bonds and stocks. Practitioners could develop mechanisms to help consumers who have short planning horizons, and the expansion of planning horizons will increase the demand for bonds and stocks and other financial instruments for long term planning.

To help nonwhite clients make investment decision is a challenge for personal financial planners. Based on the study, nonwhites were likely to have lower levels of bond and stock holdings than otherwise similar whites. Since nonwhites are a broad term for racial identities, financial planners may attempt to identify the perceived needs of consumers from different ethnic backgrounds. Basically, families with higher income and higher levels of wealth would like to buy bonds and stocks. But it may not be true for some ethnic groups because of their traditional values, religious reasons, or family habits. Financial planners may find it difficult to persuade nonwhites to invest in certain products, but if planners make an extra effort to give them information and predicted results, perhaps more nonwhites will choose to put money in investments with higher rates of return.

Implications for Future Research

In this study, only dollar values of stock and bond holdings are examined. Future research may consider to examine the determinants of bond and stock ownership, and savings behavior in the two accounts using longitudinal data. Also, other investment instruments, such as CD, IRA, money market accounts, mutual funds, and other financial assets, could be investigated using the same methods used in in this study. Different investment instruments could also be examined together to explore similarities and differences of their functions in family investment decision.

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