

Financial Assets and Wealth of South Korean Families

In this study a Tobit model was used to investigate the factors influencing the percentage share of financial assets held in the wealth of families in South Korea. The findings indicate the overall low level of financial assets held by Korean families which is contrasted sharply with the widespread ownership of residential property. Family income was positively associated with an increased proportion of financial assets in family wealth. Such finding suggest that financial assets are invested in primarily by those with relatively high levels of disposable income.

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Introduction

The composition of financial assets and their share in a family's portfolio is influenced by several factors. These include the goals of the investor, the risks that the investor is willing to take, the taxes that will be imposed on any gain, and a knowledge of the available opportunities and alternative investments.

In the last decade Korean families have witnessed significant economic and social changes that undoubtedly had an impact on the structure of investment portfolios. The purpose of this study was to explore the effects of income and wealth, among other variables, on the holdings of financial assets and their proportion to wealth in the portfolio of Korean families.

Previous Studies

None of the previous studies have dealt explicitly with the effects of socio-economic variables on the ratio of the value of holdings in financial assets to wealth in Korea. Several previous empirical studies, however, are relevant to the current research.

Samuelson (1969) and Merton (1969) developed a long-run theoretical model to explain household's asset allocation behavior. Assuming additive separable utility function expected utility of household's results from the maximization of consumption subject to a budget constraint. Uncertainty is assumed to be an element of the budget constraints. According to this model, wealth and the proportion of wealth consumed are independent, composition of the portfolio and wealth, as well as age are also independent.

Uhler and Cragg (1971) investigated the effects of no-human wealth, income, family size and the age of household head on several aspects of the manner in which households structure their holdings of financial assets. One of their conclusions is that wealth, age and family size are significant determinants of the total amounts of financial assets, whereas income is rarely significant.

Cohn, Lewellen, Lease, and Schlarbaum (1975) investigated empirically the effect of wealth on the proportion of individual portfolios allocated to risky assets. Their results show that as wealth increases, a higher proportion of the total is committed to risky assets, after controlling for age, gender, and income. Lease, Lewellen, and Schlarbaum (1976) conclude that interest in short-term gains increased with age, highly educated professionals were greatly interested in diversification, and older females were more interested in receiving dividends.

Feldstein (1976) using data from the 1962 survey of household income and assets by the Board of Governors of the Federal Reserve System examined the impact of the tax structure on asset holdings. He found that the personal income tax has a very strong effect on portfolio asset allocation, after adjusting for the effects of gender, net worth, age, and the ratio of human to non-human capital. Hubbard (1985) using data collected in 1979 and 1980 under the auspices of the U.S. President's Commission on Pension Policy found that personal taxation and participation in social security and private pension systems have a significant impact on portfolio choice and composition.

Based on a sample in the United Kingdom, Shorrocks (1982) reported that gender, age, and total value of wealth holdings significantly affected the allocation of wealth among types of assets. Weagley and Gannon (1991) using data collected in the State of Missouri investigated the effect of wealth and stage in the life cycle on the investors' willingness to assume investment risk. They found a positive relationship between wealth as well as age and the investment in riskier assets.

Xiao (1996) using the 1989 Survey of Consumer Finance examined the effects of income and life cycle variables on the ownership of eleven households held financial assets. He reported that those life cycle variables, such as marital status, employment status, age of the head of the household, and child's presence, impacted upon the ownership of all the eleven financial assets.

Yang and Hong (1998) identified factors associated with the likelihood of owning institutional and non-institutional risky assets in Korea. Their results indicate that unearned income, housing tenure, education, occupation, marital status, and ownership of non-risk financial assets are related to the likelihood of holding of institutional risky assets. On the other hand, unearned income, housing tenure, occupation, residence, and debt status are related to the likelihood of holding non-institutional risky assets.

Kim (1998) examined the factors affecting the holdings of safe liquid assets, moderate/risk investments, and risky investment assets in Korea. Her findings indicate that older age households seek low risk investments to generate stable income streams.

Methods

Data and Sample

The data are taken from the 1994 Korean Household Panel Survey. The survey is the second national data set collected by the Daewoo Economic Research Institute (data are collected every year). The survey is a stratified random sample of 3,625 Korean households. The survey includes detailed information on household characteristics, such as age, education, occupation, marital status, area of residence, and family composition. It also includes information on household income as well as assets and liabilities. The sample in this study comprised 2,729 families, of which 2,153 had some of their wealth in the form of financial assets.

Variables

The dependent variable used in this study is the ratio of the value of holdings in financial assets to wealth. Financial assets include value of savings, stocks, bonds, the cash value of life insurance policies, cash lent to others, and Gye amount (Gye is a financial club which is a traditional financial management method in Korea.) For a history of Gye participation, see Hong and Kim (1998). Wealth includes financial assets and the value of equity in personal residence. Unfortunately, there is no information on investments in real estate provided in the data set. However, in Korea most of the wealth of households held in the form of homes and financial assets.

The independent variables sought to explain the share of wealth held as financial assets are: (1) family's wealth (defined as total assets minus total liabilities), (2) total gross annual income, (3) family location (urban vs. rural), (4) presence of children, (5) whether the family is dual earner (a dichotomous variable taking the value 1 if the wife is employed), (6) whether the husband was a wage earner, and whether the husband was self-employed, (7) education of the husband (a dummy variable consisting of three categories; less than high school, high school, and college education, with the first category as the omitted category), (8) age of the husband (a dummy variable consisting of five categories; less than 35 years, 35 to 44, 45 to 54, 55 to 64, and 65 and older; with the last category as the omitted group). Wealth was modeled as a quadratic term, so a variable equal to the square of wealth was also entered into the model.

Statistical Method and Model

Multivariate Tobit analysis was used to take into account the potential bias that may be present when there are large number of zeros present in the dependent variable. The use of ordinary least-squares in such cases is inappropriate.

The empirical model used in this study can be expressed as follows:

$$R_i = \alpha + \beta_1 N + \beta_2 N^2 + \beta_3 Y + \beta_4 L + \beta_5 C + \beta_6 D + \beta_7 W + \beta_8 E_1 + \beta_9 E_2 + \beta_{10} A_1 + \beta_{11} A_2 + \beta_{12} A_3 + \beta_{13} A_4 + \mu \quad (1)$$

where R_i is the ratio of the value of holdings in financial assets to wealth, α is a constant, β_1 to β_{13} are unknown coefficients, N is wealth, N^2 is the square of wealth, Y is total gross annual income, L is urban location of residence, C is presence of children, D indicates a dual earner family, W indicates that the husband is a wage earner rather than self-employed, E_1 indicates a husband with a high school education, E_2 indicates a husband with a college education, A_1 is a husband whose age is less than 35 years, A_2 is a husband whose is between 35 to 44 years of age, A_3 is a husband whose is between 45 to 54 years of age, A_4 is a husband whose is between 55 to 64 years of age, and μ is an error term.

This equation can be summarized as the following Tobit model:

$$\begin{aligned} R_i &= \alpha + \mathbf{X}\beta + \mu & \text{if } \alpha + \mathbf{X}\beta + \mu > 0 \\ R_i &= 0 & \text{if } \alpha + \mathbf{X}\beta + \mu \leq 0 \end{aligned} \quad (2)$$

where \mathbf{X} is a vector of independent variables, β is a vector of unknown coefficients, and R_i and μ are as defined previously.

Characteristics of the Sample

Sociodemographic characteristics

Data describing the sociodemographic characteristics of the sample are shown in Table 1. Average family size was four members per family and the average number of children was 1.83. The majority of families (90.5%) had at least one child under the age of 18 living with them. The average yearly income before taxes was 19,725,000 won per family. Slightly over half of the sample resided in urban areas (54.75%). Dual earner families represent 17.2% of the sample. The percentage of families whose husband was in the age category (35-44) is the highest (33.7%), whereas families whose husband was 66 years of age or older is the lowest (8%). A husband who completed a high school education headed the majority of families (41.6%). Families whose husbands were wage earners represent 45.3% of the total sample, compared with 54.7% in self-employment, farm, temporary employment, or unemployed.

Table 1
Descriptive Statistics for Selected Sociodemographic Characteristics

Variable	Mean or Percentage
Family size	4.02
Number of children	1.83
Presence of children	90.5%
Yearly income (in 1,000 won)	19,752
Location of residence:	
Urban	54.7%
Rural	45.3
Dual earner families	17.2%
Age of husband:	
Less than 35	24.9%
35-44	33.7%
45-54	19.4%
55-64	14.0%
65 and older	8.0%
Education of husband	
Less than high school	39.5%
High school	41.6%
College	18.9%
Occupation of husband	
Wage earner	45.3%
Self-employed/farmer/temporary/unemployed	54.7%

Table 2 shows the mean value of won holdings of different specific assets and liabilities for the sample. Financial assets represent 13.47% of the wealth of the Korean families in the sample. The majority of financial assets are composed of savings accounts (54.95%). The cash value of life insurance constitutes 25.93% of the total financial assets, whereas money lent to others is 8.55%. Gye, Stocks, and bonds represent 6.04%, 4.02%, and only .5% of total financial assets respectively. It is clear from Table 2 that the net value of residence constitutes the bulk of wealth (92.98%) of wealth of the Korean families, whereas liabilities constitute only 6.45%.

Table 2
Assets and Liabilities of Sample Families

Asset/Liability	Mean (in 1,000 won)
Total assets	61,485
Financial assets	7,781
Savings accounts	4,276
Stocks	313
Bonds	39
Cash value of life insurance	2,018
Gye	470
Money lent to others	665
Net residence value	53,704
Liabilities excluding mortgage	3,725
Wealth	57,760

Findings and Discussion

Table 3 shows the results of fitting the Tobit model to all 2729 families. Perhaps the most surprising result reported in the table is the statistically significant negative coefficient for wealth, suggesting that the share of wealth in financial assets declines with increasing wealth. Conversely, the effect of income is positive and statistically significant. The term wealth squared is positive and statistically significant indicating a nonlinear relationship between wealth and the ratio of financial assets to family's wealth.

These findings contradict previous studies that showed as wealth increases, a higher share of the total is invested in risky assets (Cohn, Lewellen, Lease, & Schlarbaum, 1975). Also, they contradict the study by Uhler and Cragg (1971) who found income not having a significant effect on the holdings of financial assets.

Table 3
Factors Influencing the Percentage of Korean Family wealth Held in Financial Assets

Explanatory Variables	Coefficient (St. Error)
Wealth	- 0.0033 (0.0004)***
Wealth ²	0.0076E-5 (0.0014E-5)***
Income	0.0064 (0.0008)***
Urban	0.2623 (0.0035)
Presence of children	8.2898 (4.1114)*
Dual earner families	7.6074 (2.8189)**
Wage earner	4.5133 (2.1601)*
High school	4.1853 (2.3710)
College	10.8139 (3.0262)***
Less than 35	20.6841 (5.2134)***
35-44	17.9183 (4.9869)***
45-54	9.2333 (5.0682)
55-64	3.8060 (5.0005)
Intercept	-13.5816 (4.662)**
- Log-likelihood	11990
p<.05* p<.01** p<.001***	

The overall low level of financial assets held by families (constituting only 13.47% of wealth) and the positive relationship between income and the dependent variable indicate that those only with relatively high levels of disposable income invest in financial assets.

The Tobit coefficients reported in Table 3 should be interpreted in relation to an underlying unobserved latent variable that might be considered as the family's propensity to invest in financial assets. Therefore, the income coefficient of .0064, for example, tells us how a change of one won affects the propensity to invest in financial assets. On the other hand, the effect of a change in a won on the observed share of wealth in financial assets is given by the following equation:

$$\partial E(Y) / \partial X_j = \phi(Z) \beta_j \quad (3)$$

Where $\partial E(Y)$ is the partial derivative of the expected value of the dependent variable, ∂X_j is the derivative of the j th X variable, β_j is the Tobit regression coefficient, and $\phi(Z)$ is the probability that an observation, with a given set of X values, is uncensored.

The effect therefore, depends on the value of the other coefficients and the family's value on the corresponding variables. However, if we set $\phi(Z)$ equal to the observed probability of having some financial assets in wealth ($2153/2729 = .789$), then the income effect on the observed share of wealth is .005. This is the expected change in holding of financial assets, given a change of one won of income, for a family with an average probability of having invested in any financial assets.

Presence of children in the family, other things being equal, was positively related to the ratio of financial assets in a family's wealth. Also, dual-earner families had a higher ratio of financial assets in family's wealth compared with one-earner families. Families in which the husband was a wage earner had a higher ratio of financial assets to wealth when compared with families in which the husband was self-employed, farmer, temporary employed, or unemployed.

Compared with families headed by a husband, who had less than high school education, those with husbands with college education had a higher ratio of financial assets to wealth. However, there is no difference found between those families and those with a husband who had a high school education.

Families with a husband whose age was less than 35 years of age, and the 35 to 44 years of age had a higher ratio of financial assets to wealth than those with a husband whose age was 65 years or older. No significant differences are found between families with a husband in the last age group and those with a husband in either the 45 to 54 age group or the 55 to 64 age group. Differences between rural and urban families in the ratio of financial assets to wealth were not statistically significant.

Summary and Conclusions

This paper investigated the effects of wealth, income, location of residence, presence of children, work status of the wife, husband's age, education, and occupation on the proportion of financial assets in a family's wealth in Korea. Employing a Tobit model on a sample taken from the 1994 Korean Household Panel Survey, we found most surprisingly that wealth is negatively associated with the share of financial assets in the wealth of families.

Also, the findings indicate the overall low level of financial assets held by Korean families which is contrasted sharply with the widespread ownership of residential property. Family income was positively associated with an increased proportion of financial assets in family wealth. Such finding suggest that financial assets are invested in primarily by those with relatively high levels of disposable income.

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Endnotes

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