An Empirical Study on Determinants of Household Ownership of Risky Assets

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ABSTRACT

In India, on an average, household sector has accounted for nearly 80% of gross domestic savings (GDS) during the last decade. However, a major part of their investments are either in fixed income bearing instruments or physical assets. Hence, the authors make an attempt to analyse the determinants of household portfolio, particularly the ownership of risky assets. The authors collected data from 345 households from southern city of Coimbatore using judgment sampling and used logit regression to study the relationship between the variables. The study found that planning, age, income and marginal tax rate significantly and positively influence the ownership of risky assets. On the other hand, pension benefit status was found to have negative influence on the ownership of risky assets. Occupation too was found to have an impact on the ownership of risky assets.

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Introduction

India has emerged as an economic power to reckon with. The Indian economy has been attracting foreign investments at a healthy rate ever since economic reforms commenced in early 1990s. The economic progression has made personal finance an important issue in recent times. There is an increasing demand for information on personal finance for reasons such as, the rapid changes taking place in the financial markets due to financial sector reforms, the proliferation and complexity of investment products, and the number of financial scams reported during the last decade and a half. If households have insufficient knowledge concerning the saving process and they do not have the tendency to plan, they are unlikely to be able to make optimal investments. A lack of financial knowledge and poor planning may result in households starting to save too little, too late in life to reach their various life cycle goals in general and their retirement goals in particular. As a result, they are unlikely to achieve the desired balance between consumption while working and consumption in retirement. Additionally, a lack of information concerning the risk return distribution of various investments might lead households to misallocate their retirement portfolios.

In India, typically every household head has the responsibility to earn and look after his family members. The responsibilities may come in the form of taking care of the needs of the household like, children education, housing, children marriage and retirement kitty to live comfortably after retirement. To fulfill these responsibilities at different points of the life cycle, the household head has to carefully plan the investment of surplus earnings. A gamut of financial assets are available in the form of banks fixed deposits, government and corporate fixed income securities, mutual fund units, common stocks, provident and pension fund, insurance, home, real estate, gold etc. Each option has a different rate of return, risk and liquidity. An individual's need may differ from another and hence the investment patterns may also differ accordingly. Therefore, there might be varying degrees of preferences for different investment vehicles. Every household tends to keep some cash balance and maintain certain amount in the form of bank deposits to meet its transaction and precautionary needs. In case of salaried class, contributions to employee provident and pension fund are more or less compulsory due to the legislative bindings on the employers. Life insurance covers the household to meet situations arising out of untimely death of the breadwinner. The surplus income above these needs awaits investment in competing financial and non-financial assets.

Table 1 : Changes in financial assets/liabilities of the household sector

Year	Currency	Bank deposits	Non-banking deposits	Life insurance fund	Provident & pension fund	Claims on Govern-ment	Shares & debentures	Units of UTI Mutual Fund	Trade Debt (Net)
1992-93	8%	37%	8%	9%	18%	5%	10%	7%	-2%
1993-94	12%	33%	11%	9%	17%	6%	9%	4%	-1%
1994-95	11%	38%	8%	8%	15%	9%	9%	3%	-1%
1995-96	13%	32%	11%	11%	18%	8%	7%	0%	0%
1996-97	9%	32%	16%	10%	19%	7%	4%	2%	0%
1997-98	7%	43%	4%	11%	19%	13%	3%	0%	0%
1998-99	11%	38%	4%	11%	22%	14%	2%	1%	-3%
1999-00	9%	35%	2%	12%	23%	12%	7%	1%	0%
2000-01	6%	38%	3%	14%	19%	16%	4%	0%	0%
2001-02	9%	38%	3%	14%	16%	18%	3%	-1%	0%
2002-03	9%	38%	3%	16%	15%	17%	2%	-1%	0%
2003-04	11%	38%	1%	14%	13%	23%	2%	-2%	0%
2004-05	9%	36%	1%	16%	13%	25%	2%	-1%	0%
2005-06	9%	46%	1%	14%	11%	15%	5%	0%	0%
2006-07	9%	56%	0%	15%	9%	5%	6%	0%	0%

Source: Handbook of Statistics on Indian Economy (Reserve Bank of India, Oct 01, 2007)

Table 1, derived from Table 11 (Changes in financial assets/liabilities of the household sector) of the aforementioned Reserve Bank of India publication, exhibits the allocation of investments into various financial instruments. As can be seen from the table, bank deposits have been dominating all other instruments in terms of the investment allocation by the household sector. This can be interpreted as lack of sophistication in personal financial management by the Indian household sector.

Literature Review

As the study attempts to analyse the determinants of household portfolio, the review of literature spans across studies which address issues involving household portfolio composition and their determinants; financial planning and retirement wealth accumulation.

Franco Modigliani (1986) argues that people save in order to smoothen their consumption over their lifetime. This theory assumes that if people are well informed about the need for retirement saving, and wish to smoothen their consumption in order to maintain their living standards post-retirement, then in the absence of unforeseen events, those nearing retirement age should have accumulated sufficient assets to maintain such post-retirement consumption.

Bertuat and Starr-McCluer (2000) found that the portfolio of the typical household remains fairly simple and safe. Flavin and Yamashita (1998) found that young households have larger holdings of real estate, compared to older households. Borch-Supan and Eymann (1999) as well as Jang and Mohamed (2000) found that most households' wealth was held in the form of housing and pensions. Bertuat and Starr-McCluer (2000) showed that age, wealth, and college education had significant effect on the ownership of risky assets.

Jang and Mohamed (2000) found that wealth is negatively associated while family income was positively associated with the share of financial assets.

Yoo's (1994) cross-sectional study indicates that the relationship between ageing and portfolio allocation is not linear; young and retired individuals demand less risky assets than middle-aged individuals. Poterba and Samwick (1999) as well as Agell and Edin (1990) found that the marginal tax rate of households had an effect on portfolio choice. These studies provide valuable insights into the allocation pattern of household portfolio and their determinants.

Having received due significance originally from arguments of the life-cycle hypothesis, retirement planning has attracted lot of research interest. Let us therefore review some of the major studies which seem to link retirement planning and

household portfolio allocation. Ameriks and Yakoboski (2003) opined that the major retirement problems faced by the retirees are longevity risk, rate of return risk, inflation risk and medical risk. They suggested annuitizing the accumulated savings for ensuring a guaranteed stream of retirement income. However, they found that the annuitization rates among the retirees are low and opined that one of the major reasons was the lack of consumer understanding of the benefits of the products. Lusardi (2000) emphasized that understanding the link between saving and planning may have implications for examining the consequences of changes in pension plan provisions, such as the current shift among employers from defined benefit pension plans to defined contribution pension plans. Using the Health and Retirement Study (HRS) 1992, in a cross sectional study of 1,172 U.S. individuals (households' head who were 50 to 61 years old and neither fully nor partially retired), Lusardi found that the respondents who had not thought of retirement had low wealth (excluding the social security benefits) when compared to those who had entertained such thoughts. Ameriks, Caplin, and Leahy (2002) using a cross sectional study of 500 U.S. participants of Survey of Financial Attitudes and Behaviour (FAB) 2001 surveyed in January 2001, analysed the reasons behind similar households ending up with very different levels of wealth. They found that households with a higher propensity to plan are associated with increased wealth. They also found that the annuitization rates among the retirees are low and opined that one of the major reasons could be the lack of consumer understanding of the benefits of the products. Thus, past research seems to suggest retirement planning as a major determinant of household portfolio allocation.

Since the current study is in the Indian context, let us review some of the recent empirical studies in the Indian context. Rajarajan (1999) using data from 405 Chennai investors showed that stage in life cycle of individual investors is an important variable in determining the size of the investments in financial assets and the percentage of financial assets in risky category. Mukhopadhyay (2004) using data from 200 Kolkata investors found that aged people preferred less risky investments while the young were aggressive in risky investments. Education was found to have an impact on the investors' perception towards investments in risky assets in the capital market. SEBI-NCAER (2000) study found that only 7% of all households invested in shares & debentures and 9% in mutual fund units.

Majority of the equity investor households held an undiversified portfolio of relatively small value not exceeding Rs.25000.

Outlook Money-C fore survey (2004) interviewed 2,018 income taxpayers in six Indian cities and

found that only one-third of the respondents favoured the option of pension funds investing in equity and an equal number rejecting the option, as being 'too risky'. Vaidyanathan (2004) found that in India the life insurance companies had sufficient opportunities to come up with innovative products to capture the market of the self-employed who did not have any old-age income providing scheme and hence invested in gold. Thus, past research seems to suggest that major determinants of portfolio composition are Age, Wealth, Income, Education, Marginal Tax Rate, and Planning.

Research Methodology

This section discusses the rationale behind the study including hypothesis formulation, data collection and the analytical tools used for analysis.

Objective

The objective of the current study is to analyze the factors influencing composition of household portfolio, and specifically ownership of risky assets. The reason for focusing on ownership of risky assets is that in general Indian investors have been found to be risk averse. The domination of bank deposits in asset allocation as exhibited by table 1 also affirms the risk-averse behaviour of the Indian investor. Moreover, the lack of participation in risky assets may result in accumulation of lower wealth for post-retirement consumption, given the assumption that risky assets are tax efficient and at the same time provide superior returns too. The findings of the study should be able to assist financial intermediaries in designing better financial products on one hand and to enable formulation of appropriate macro and micro economic policies for sustainable growth and development, on the other.

Data and Sample

The focal point of the study is to observe the relationship between 'planning' and 'investment in risky financial assets' besides other factors such as age, income, education, occupation etc, which have been probed extensively in prior research. The study conveniently selected the southern Indian city of Coimbatore by considering the time and cost constraints.

The sample for the study consisted of only households who had received Form-16 (Tax deduction at source certificate from the employer, as required under Indian Income Tax Act) from their employers. In case of self employed and businessmen who do not receive such a document, only those having an income exceeding Rs.80,000 per annum were considered. Thus, the filtering criteria mentioned above ensured that the sample consisted of respondents whose income level was above the exempted income tax limit as applicable in the year of data collection. This filtering ensured that tax status of the individual could be captured

in our study to enable inferences to be made about the influence of tax status on savings behaviour of the respondents. The study used a questionnaire to collect the demographic information such as age, income, education, occupation, household size, and the level of planning done by the household using a series of questions. To determine the level of planning, the questionnaire solicited dichotomous responses and then awarded appropriate scores to adequately reflect matured tendencies like tracking the monthly expenses, savings out of monthly earnings, saving beyond tax requirements, possessing life and medical insurance, preparing a monthly budget for spending, withdrawal from Provident Fund, usage of credit for construction of house, usage of credit cards, etc. The study also collected information about the respondents' investments in different financial and non-financial asset categories. The response to this questionnaire was used in analyzing the influence of various factors on households' ownership of risky assets. The authors used judgment-sampling technique to collect data from households in Coimbatore. The questionnaire was administered between 15th Oct 2004 and 15th Jan 2005 in Coimbatore. While administering the questionnaire, considerable time was devoted to personally explain various items on the questionnaire to each respondent. The authors circulated nearly 900 questionnaires in Coimbatore out of which only 345 were complete in all aspects and hence the sample size used in our study is 345.

Variables

The dependent variable for our study is the 'Ownership of Risky Assets' (RA). The independent variables are attributes such as planning, age, income, education, home ownership, household size, marginal tax rate, pension benefits and occupation.

Analytical Tool

The authors used Multivariate Logit regression technique to analyze the relationship between the dependent and independent variables. The objective of the analysis was to identify variables which could have significant impact on the households' portfolio composition. Logit regression has been used primarily because of the unsuitability of Ordinary Least Square (OLS) technique when the dependent variable is of qualitative nature as is the case in our study (Damodar N. Gujarati, 2004). Further, the conventionally used coefficient of determination (R^2) is of limited value in the dichotomous response models like the one used in the current study. Thus, in binary regression models, goodness of fit is of secondary importance. The expected signs of the regression coefficient and their statistical and/or practical significance are instead more relevant.

Analysis of results

Once the data was collected, a master data sheet containing all the details of the respondents was prepared. This master data was used to describe the sample characteristics. The analysis carried out to test the hypothesis is discussed in the following section.

Sample Profile

The authors made an attempt to ensure that the sample consists of households from all walks of life. The sample of the study is made up of representative cross-sections: salaried employees in the private sector (52 per cent), government employees (29 per cent) and businesspersons (19 per cent); four age groups: 21-30 years (15 per cent), 31-40 years (46 per cent), 41-50 years (24 per cent) and 51 plus (15 per cent). In terms of household income, the income distribution consists of: less than Rs. 1 lakh (6 per cent); Rs. 1-2 lakh (50 per cent); Rs. 2-3 lakh (29 per cent); and over Rs. 3 lakh (15 per cent). The respondents from the salaried private sector represent textile, software, construction, hospital, medical transcription, engineering machineries, banking, and insurance industries.

The ownership of assets was classified into 'Clearly Safe Financial Assets' (CSFA), 'Fairly Safe Financial Assets' (FSFA) and 'Risky Assets' (RA) in order to construct a risk profile of the sample households. More than 90 percent of the respondents own fairly safe and clearly safe financial assets. However, only 29 percent of the households own risky assets and it is therefore, imperative to analyze the variables influencing ownership of risky assets as stated in the objective of the study.

The authors were interested to test the hypothesis that ownership of risky assets by a household is influenced by a number of independent variables. With an objective to test the variables which are significant in influencing the ownership of risky assets, the authors used the logit regression model, taking 'ownership of risky assets' as the dependent variable. The independent variables being planning, age, income, education, home ownership, household size, marginal tax rate, pension benefit status and occupation. The model was found to be significant in explaining the relationship between the ownership of risky assets and other independent variables. (Refer Table 2). The results can be summarized as under.

- Households' eligibility for government pension was found to be negatively related with the ownership of risky assets at 95 percent confidence level.
- Age was found to be positively and significantly related at 95 percent confidence level.
- Planning, Income category of Rs.200001-250000, the marginal tax rates of 20 percent and 30 percent were found to be positively and significantly related with ownership of risky assets at 90 percent confidence level.
- Academicians' and managers' ownership of risky assets is significantly less, compared to respondents from the financial services category at 90 percent confidence level.

Table 2 : Multivariate Logit Regression Results

Variables	Beta	Sig. Level	Exp (Beta)
Planning	0.13	0.081^	1.139
Age	0.036	0.030*	1.036
Rs. 80001- 100000	0.359	0.693	1.431
Rs. 100001-150000	-1.004	0.117	0.366
Rs. 150001-200000	-0.583	0.242	0.558
Rs. 200001-250000	-0.922	0.072^	0.398
Rs. 250001-300000	-0.048	0.927	0.954
Rs. 300001-350000	-1.163	0.139	0.313
Graduate	0.545	0.347	1.724
Post-Graduate	0.755	0.238	2.128
Home Owner	0.255	0.438	1.29
Household Size	-0.006	0.969	0.994
20 Percent Tax Rate	1.116	0.055^	3.053
30 Percent Tax Rate	1.117	0.061^	3.056
Employee Pension Scheme	0.123	0.739	1.131
Eligible for Govt. Pension	-0.839	0.038*	0.432
Academician	-0.81	-0.070^	0.445
Professional	-0.683	0.185	0.505
Manager	-1.154	0.034*	0.315
Business	-0.604	0.253	0.547
Others	-0.457	0.375	0.633

* – 95 percent confidence level; ^ - 90 percent confidence level

Findings and Conclusion

Results of the multiple logit regression indicate that the independent variables like planning, age, income, marginal tax rate, pension benefits and occupation are significant in explaining ownership of risky assets. The major findings of the study can be summarized as under:

- Ownership of risky assets and age exhibits significant positive relationship. This is in line with the findings of Bertuat & Starr-McCluer (2000). Thus, the ideal conceptual framework of negative relationship does not get an empirical support from our study.
- Ownership of risky assets decreases as the income level decreases in case of income category Rs.200001–250000. Prior research suggested that as the income increases the ownership of risky assets might increase (Bertuat & Starr-McCluer, 2000; Jang & Mohamed, 2000; and Poterba et al., 1999). Thus, this seems to be in line with previous research.
- The variables, marginal tax rate and ownership of risky assets are found to be positively and significantly related. It is expected that as one's marginal tax rate increases, one is expected to invest in instruments, which are tax efficient (Poterba et al., 1999; and Agell & Edin, 1990). In India the long-term capital gain was taxed at 10 percent up to the financial year 2003-2004 and since then, it has become exempt. In case of short-term capital gains it was 30 percent and 10 percent, respectively. Thus, prudent investors will make use of this opportunity and invest in tax efficient risky assets as the marginal tax rate increases. As expected, such a positive relationship does exist among the sample respondents.
- Relationship between government pensioners and ownership of risky assets was found to be significantly negative. It is expected that as one's pension benefit status improves one can take some risk to improve wealth accumulation. However, if the respondents visualize that they have some kind of future cash flow after retirement in the form of government pension or Employees Pension Scheme, they may also develop a sense of post-retirement security and therefore may not invest in risky assets to maximize their wealth accumulation (Ameriks, Caplin, & Leahy 2002). The negative relationship found in the current study between the ownership of risky assets and pensioners lends further credibility to the argument.
- The study found that the ownership of risky assets by academicians and managers is

significantly less, compared to respondents from the financial services category. Agell & Edin (1990) found that white-collar worker hold more risky assets as compared to others in Sweden. The findings of current study throws a fresh perspective on this by suggesting that even within the white-collar worker category, differences may exist when further sub-categorized.

Thus, one could summarize that planning, age, income and marginal tax rate significantly and positively influence the ownership of risky assets. The variable that influences the participation in risky assets negatively is 'pension benefits.' In case of occupation, the ownership of risky assets among the academicians and managers was found to be significantly less, compared to that of respondents from the financial services category. While on one hand the study has reaffirmed some of the findings of prior research, the study has also provided fresh perspective on certain aspects of household portfolio allocation and its determinants in the Indian context. While previous published studies have focused on relatively larger Indian cities, the current study breaks the ground by generating evidence from a relatively smaller city. Considering the significance that has been placed on India as a country global investment and business destination, there lies tremendous future scope to replicate the study across various geographical regions within the vast country to see if the findings would differ from the one presented herein.

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