

Preferences and Characteristics of Mutual Fund Investors^{*}

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Abstract

In 2000, 4.4 million Swedes invested their pension account in mutual funds. This event in combination with a rich database allows for a detailed examination of individual investors investment decision. This paper extends current evidence on the relation between fund flows and fund characteristics by examining past return and fees of fund versus individuals' characteristics. The empirical analysis shows that women prefer low-fee funds whereas individuals with higher education and more experience of financial markets invest with higher-fee funds. The analysis also shows that men exhibit a more pronounced return-chasing behavior than women.

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1 Introduction

The global interest and demand for mutual funds have increased dramatically during recent years. Total assets under management in the U.S. industry grew from \$ 2 trillion in the beginning of 1995 to \$ 9 trillion at the end of 2005. The European mutual fund industry experienced similar growth and grew from Euro 1 trillion at the beginning of 1995 to Euro 5 trillion at the end of 2005. This growth can partly be explained by a broadening of the customer base and in some countries, such as Sweden, 94% of the population in the age 18 to 74 years old now owns a share in a mutual fund. Hence, mutual funds are today a very important savings vehicle for most people in developed countries and they provide an excellent opportunity to obtain a more diversified portfolio through investments in new markets and asset classes. Mutual funds have not only been an important savings vehicle in the past, they are also likely to gain in importance since the reforms of current public pension systems tend to suggest a movement from defined benefit systems towards defined contribution systems. This implies providing individuals the opportunity to make their own investment decision through investments in mutual funds, which also results in high net inflows to the industry in the future.

In the light of the fast growth and the increasing importance of the mutual fund industry in the society, understanding of investor behavior is critical to policymakers and asset managers to successfully meet the many challenges and opportunities. Policymakers need to have an understanding of investor behavior in order to design the new defined contribution systems appropriately. Similarly, an understanding of investor behavior is an important task for asset managers in order to be successful in the battle of fund flows. Moreover, studying mutual fund investor behavior allows for testing theoretical assumptions about individuals' behavior and other empirical evidence from the psychological literature. This paper aims to deepen current knowledge on investor behavior by a detailed examination of individuals' investment decisions in mutual funds.

The mutual fund industry has, in addition to the increasing attention from investors, gained significant attention in academic research. Several studies which examine investor behavior appeared in the 1990s. Many examine the relation between aggregate inflows of funds and fund characteristics, which provides interesting evidence on the investors' decision making. A number of interesting findings have been documented in this literature. For instance, Sirri and Tufano (1998) show that there exists a strong positive relation between risk-adjusted returns and inflows to U.S. funds. Chevalier and Ellison (1997) show that the relation between inflows and past returns is convex, that is, the best performing funds become rewarded by the lion share of net inflows. Actually, past return has been put forward as the most important determinant of mutual fund flows. Other findings, however, suggest that investors are fee sensitive to some extent. Sirri and Tufano (1998) document a negative relation between fund fees and inflows. Moreover, Khorana and Servaes (2001) show that price-competition is an effective strategy in a fund family's pursuit of market share, that is, funds that reduce their fees tend to grow faster. Interestingly, Engström and Westerberg (2004) examine Swedish data and document somewhat different investor behavior. Their results suggest that the management fee has a stronger impact on investors' behavior than past returns, in that they avoid high-fee funds. Furthermore, they document evidence to suggest that indirect costs, due to unfamiliarity, matters when investor choose funds. For instance, given past performance and fee level, Sweden based funds receive higher inflow of capital than corresponding foreign fund manager.

In a recent study of fund flows, Del Guercio and Tkac (2002) document interesting empirical differences in the flow-performance relation across mutual fund and pension fund industry segments that suggest that these managers operate in fundamentally different environments. This finding is of increasing importance for studies of mutual fund flows as pension funds are increasing their investments in mutual funds. This implies that researchers might obtain biased results when examining aggregate mutual fund flows as it includes to a certain and changing degree both institutional and individual investors. Del Guercio and Tkac

(2002) show that pension funds are more patient investors and a mix of one year and three year return affect pension fund flows. Instead mutual fund flows are strongly related to short term performance. Furthermore, in contrast to mutual fund investors, pension funds punish poorly performing managers by withdrawing assets under management and do not flock disproportionately to last year's winners. Moreover, Del Guercio and Tkac (2002) show that pension fund flows are linear in returns compared to convex flows in mutual funds.

This study extends current evidence by a detailed evaluation of the impact that past returns and the charged fee have on different individuals' investment decision. Compared with previous studies, this paper provides three main advantages: First, instead of examine the relation between aggregate flows into funds this study examines individual investors' investments in mutual funds and thus avoiding mixing individual and institutional investors. Second, I have access to a rich and large database, which includes information of individuals' education, employment, income, pension savings, age, sex, and marital status. Third, the study only includes inflows to mutual funds to obtain information on true preferences and avoiding mixing preferences with tax incentives and other factors that might be associated with redemptions.

The data that is examined in this paper comes from the launch of a new defined contribution pension system, which was launched in Sweden in the fall 2000. This system forced the Swedish workforce, or 4.4 million individuals, to make an investment decision and invest part of their pension funding in mutual funds. The outcome was that 67%, or 2.9 million individuals ceased the opportunity and made an active investment decision. This makes the individuals in the PPM significantly more active in making their own investment decisions compared with previous studies of U.S pension plans. Hence, this study benefit from examining a more representative group of the population as it is the active individuals that are examined. The individuals had a large menu of funds to choose from. In total 460 funds were available to individuals and included both Swedish and foreign based funds as

well as equity, fixed-income and mixed funds with many different investment objectives, for instance global-, regional-, country-, and industry funds.

The result shows among other things that women prefer low-fee funds whereas individuals with higher education and more experience of financial markets invest with higher-fee funds. This evidence is surprising, in particular in the light of the literature that shows that high-fee funds perform inferior to low-fee funds. The empirical findings also show that men exhibit a more pronounced return-chasing behavior than women. Furthermore, descriptive statistics of the fund flows during the years 2001 to 2006 confirm that fees are an important determinant of flows. However, the data contrasts current evidence and suggests that past return is not as important as found in previous studies. In fact, funds associated with high past return experience high outflows.

The rest of the paper is organized as follows: Section 2 provides a brief description of the Swedish pension system and mutual fund industry. The sample of individuals that are examined is also presented in section 2. In Section 3, we study the relation between return chasing behavior and individuals' characteristics. Moreover, that section also provides an analysis of different individuals' fee-sensitiveness. Section 4 presents descriptive statistics of the development of the premium pension system during the years 2001 to 2006 with a focus on individuals return chasing behavior and fee-sensitiveness. Finally, Section 5 offers conclusions.

2 Background and data

2.1 The new pension system

In January 1999 Sweden introduced a new old-age pension system. The former system, a defined benefit system, was gradually replaced by the new two-tier system: a notional defined contribution pay-as-you-go system (NDC PAYG) and an advance-funded defined contribution system (DC). The latter system, which is the part of the pension system that is

studied in this paper, is based on privately managed individual accounts. The advance funded DC system is the smaller of the two parts. Total contributions in the new system are 18.5% on earnings, 16% is placed within the NDC PAYG system and 2.5% is placed in the privately managed accounts. The pension system is regulated by the Premium Pension Authority (PPM), which have overall control of the individuals' accounts and decide which mutual funds that should be available to the individuals. In the fall of 2000, 4.4 million individuals were given the opportunity to make an investment decision for their pension savings in the new mandatory pension system. At this stage, the investment menu consisted of 460 mutual funds with a wide range of investment objectives. Equity funds, mixed funds and fixed-income funds were available with different investment objectives, e.g., focusing on various countries and regions globally. Moreover, both domestic and foreign fund managers were included in the menu. The individuals had in total SEK 56 billion to invest in the funds and each individual could choose between 1 to 5 funds for their investment. This initial investment referred to contributions paid on earnings from 1995 to 1998. The fact that the average pension rights is lower for individuals born from 1938 to 1953, than for individuals born 1954-1968, is due to the gradual change in pension schemes, where individuals born 1938-1953 still receive pension rights in the former system. This implies that the new pension system will be subject to net inflows of about SEK 20 billion per year since new individuals included in the system will invest 100% of their contributions in it whereas individuals that start to withdraw assets only have small accounts since they mainly have their retirement wealth with the old system.

2.2 The Swedish mutual fund industry

The Swedish mutual fund industry experienced fast growth during the second part of the 1990s. After the bear market in the early 2000, the industry has now recovered and is at all time high. Total assets under management in the Swedish industry have grown from 207 billion SEK in the beginning of 1995 to 898 billion SEK in the end of 2000 (during this

period, the price of one USD has been between 7 and 10 SEK). At the end of 2006 total assets under management in the Swedish industry was SEK 1527 billion. This growth is partly due to a booming stock market, but households have also shifted their savings from other vehicles, such as direct ownership in stocks and bank accounts, to mutual funds. Today household's savings in mutual funds exceed their total savings on bank accounts. Households have also shifted their preferences from bond funds to equity funds. Compared with many other countries, Swedes have had a strong preference for equity funds. During the 1990:s about 70% of assets under management in the Swedish fund industry consisted of equity funds. The bear market in the early 2000:s implied increasing interest for less volatile funds, i.e. fixed-income funds and hedge funds. The overall market share for equity funds was at the end of 2006 57%. Corresponding figure for mixed funds is 16%, for fixed-income funds 22% and for hedge funds 5%. Another feature of the Swedish industry is that 4 banks play a dominant role and control about 70% of total assets. In recent years new players have entered the Swedish market and the supply of different types of funds has increased, though the Swedish industry is lagging behind the U.S. industry. Traditionally, Swedes has mainly invested in funds with an investment objective on countries or regions. However, recent development has involved increasing interest for hedge funds and funds with an investment objective on certain branch, such as technology and pharmaceutical. In contrast to the U.S. industry passive managed funds have not been very successful in attracting new money in Sweden. Their share of net flows into the market has only been a few percent.

Figure 1 shows total assets for the Swedish mutual fund industry and ownership. Households' direct investment has reduced its share of the total market since 2000 but is still the dominant owner of assets. Instead different types of pension savings are gaining in importance, such as PPM and unit-linked funds.

2.3 Individuals' decisions and the sample

The launch of the new pension system in Sweden provides a unique opportunity to examine how individuals make investment decisions. This event offers several advantages compared with previous studies. First, it was a pure event both in the sense that flows to funds only refers to individuals' investment decisions and that there are no withdrawals from funds that can hide true preferences. Second, the event involved the whole Swedish workforce which incorporates many different individuals. This fact in combination with the availability of a rich dataset covering characteristics of the participating individuals allow for an in depth analysis of various drivers of investment behavior.

The data examined in this study comes from three sources. The first dataset includes information on the mutual funds available to the individuals and has been obtained from the Premium pension authority (PPM). Almost any mutual fund could participate in the new Swedish pension system, the requirements involve a permission from the Swedish Financial Supervisory Authority (Finansinspektionen), i.e., meet the UCITS-terms, and to sign a co-operative agreement with the PPM. This agreement include to report total costs, accept the volume-discount scheme decided by PPM, not to have any exit or load fees, and on request provide information about the mutual funds to all pension-savers. These requirements implied that many asset managers decided to list their mutual funds on the investment menu for the Swedish workforce. As a result, 460 mutual funds were listed on the investment menu for the launch of the new pension system. Of these, 312 were classified as equity funds, 63 as fixed-income funds, and 85 as mixed (including life-cycle) funds. All actively managed mutual funds that were available in the pension system meet the UCITS-terms. Hence, hedge funds are not available. However, the Premium pension authority only allows non-UCITS passive index-linked mutual funds to be included in the investment menu.

The PPM provided a catalog, including detailed information on all the available funds, to all individuals that were supposed to make an investment decision. This information included past returns, standard deviation of return as a proxy for risk, management fee,

domicile of the fund, and information on the investment objective and fund management company. Previous studies have found that fund fees and past returns are the most important determinants of investment decisions. Table 1 summarizes the information on past returns and management fees that were available to individuals for the initial investment decision. We see that there was a significant dispersion for both fees and past one-year return. The fee ranges from 0.15% to 4% and the return ranges from -14% to 272%.

A second source of data comes from the STORE database, which is maintained by National Social Insurance Board. This database includes information on all individuals' investment decision. This data was then merged with data on various characteristics of individuals, such as their income, savings, education, and family status. Data on characteristics of individuals are obtained from the third database, the LINDA database, which is maintained by Statistics Sweden. The LINDA database contains a representative sample of the Swedish population and includes detailed register-based information concerning characteristics of the individuals. LINDA is used in various studies of Swedish individuals and covers 3.5% of the population. Hence, the analysis of the 4.4 million individuals who were entitled to participate in the new pension system will be based on the sample of 147 000 individuals obtained from LINDA. The characteristics refer to the information on these individuals as at December 1998.

In this study we examine the decisions of individuals who made an active investment decision. The outcome of the voluntary investment decision was that two individuals out of three made an active investment decision. However, Engström and Westerberg (2003) show that some individuals are more likely to make an investment decision, e.g., women and individuals with a higher education. Further, the youngest, between 18 and 27 years old, and the oldest, between 58 and 62 years old, made less active investment decisions. About 60 percent in these groups made an active investment decision compared with 70 percent of the investors in the rest of the population. It is, however, important to remember that both the youngest and the oldest individuals had the lowest amount of money to invest in mutual

funds. This implies that the sample in this study do not perfectly represent the Swedish population. Instead the sample (and the results) represents individuals that made an active investment decision. Table 2 provides information on the distribution of the fund characteristics chosen by the individuals. The individuals had a strong preference for equity funds which imply many more observations for equity funds compared with mixed and fixed-income funds. Moreover, there are fewer observations for past return compared with management fee. This is due to missing values for funds that had no track record.

The LINDA database includes a number of characteristics that can be classified into two groups: characteristics that provide information about the individuals' prior experience of financial markets and personal characteristics. The characteristics related to individuals' prior experience of financial market will be used to examine learning behavior and familiarity. These characteristics are:

- (i) *Education*. Individuals attending various levels of schooling in Sweden are exposed to information concerning financial markets. This implies that higher/longer education involve more exposure to information about financial market. Also, there is a selection bias that implies that more successful students gain a higher/longer education. Four levels of education are available. The first level includes individuals' with a compulsory school education, the second level includes individuals' with an upper secondary school education, the third level comprises of individuals that have attended university, and the fourth level includes individuals with a university degree.
- (ii) *Employment*. Two dummy variables are used. *Financial* for individuals that work in the financial sector and are obviously familiar with the financial markets. *Public* for individuals that work in the local government sector gained additional training in investing in mutual funds as they were supposed to invest their occupational pension account in funds prior to the launch of the premium pension system.

- (iii) *Income*. Individuals with a higher income are more likely to have savings and experience of financial markets. Income refers to individuals' taxable income in 1998. Income is measured in SEK 100,000nds.
- (iv) *Savings*. Individuals that have private pension savings are obviously familiar with financial markets. This is a dummy variable, where 1 represents individuals that have tax deductible private pension savings in 1998 and 0 represents individuals that do not have other pension savings in 1998.

The personal characteristics are:

- (i) *Age*. The individuals in the sample range in age from 18 to 62.
- (ii) *Gender*. The variable is a dummy, where women are equal to 1 and men are equal to 0.
- (iii) *Child*. This is a dummy variable for individuals that have one or more children.
- (iv) *Married*. This is a dummy variable for individuals that are married
- (v) *Sweden*. This is a dummy variable for individuals born in Sweden.

Correlation between these characteristics is generally low, about 0.1. The highest correlation coefficient, 0.37, is found for age and marital status. This implies that multicollinearity do not significantly affect the estimated coefficients.

The distribution of the individuals' characteristics in the representative sample of the Swedish workforce is shown in table 3. The table shows that there were almost as many women as men in the population, which is a reflection of the relatively high participation among women in the Swedish labor force. More than 35% of the population has children less than 17 years of age. Another feature of the Swedish workforce is the high degree of people that are born in Sweden, about 88%. The table also shows that Swedes have relatively high education; about 28% of the population has a university education.

3 Empirical analysis and results

In the light of the fast growth and the increasing importance of the mutual fund industry in the society, understanding of investor behavior is critical to policymakers and asset managers to successfully meet the many challenges and opportunities. Policymakers need to have an understanding of investor behavior in order to design the new define contribution systems appropriately. Similarly, an understanding of investor behavior is an important task for asset managers in order to be successful in the battle of fund flows. Previous studies have shown that two factors, management fee and past return, play an important role in determining flows to funds. This section deepens current evidence on the importance of fees and past performance by presenting new detailed evidence on relation between individual characteristics and investment decisions. Previous studies of fund flows have mainly used aggregate data. Hence, studies that are based on aggregate fund flows provide only evidence of the average investor (including both individual and institutional investors). This implies that observed aggregate flows might be driven by certain groups of individuals, who are major investors at the time. The problem of obtaining a biased result due to a few major investors is mitigated in this study since individuals preferences are treated equal.

In order to evaluate the relation between the two fund characteristics, management fee and past one year return, and individuals' characteristics the following multiple regression model is used.

$$Y_i = \theta + \lambda_1 Age_i + \lambda_2 Chi_i + \lambda_3 Mar_i + \lambda_4 Swe_i + \lambda_5 Gen_i + \lambda_6 Edu_i + \lambda_7 Fin_i + \lambda_8 Inc_i + \lambda_9 Pub_i + \lambda_{10} Sav_i + \varepsilon_i \quad (1)$$

Y_i is the fund average value-weighted fund characteristics chosen by individual i . The Y_i is calculated for each individual based on all chosen funds (they can choose between 1 and 5 funds). Y_i is also computed separately for each individual's choice of equity funds, mixed funds, and fixed-income funds. λ :s are coefficients of sensitivities to individuals' characteristics. The explanatory variables are Age, Child (Chi), Married (Mar), Sweden (Swe), Gender (Gen), Education (Edu), Financial (Fin), Income (Inc), Public (Pub), and

Savings (Sav) of individual i . Details of the variables is presented in the previous section. θ is the intercept in the regression and ε_i is the choice-specific error term.

3.1 Who chase past returns?

Today, there exists a rich body of literature that examines mutual fund performance. The results, which mainly are based on U.S. studies, seem to suggest that the average fund does not outperform a relevant benchmark. Indeed, many studies provide evidence of inferior performance. Similar results have been obtained from other markets besides the U.S. This evidence suggests that hiring an active fund manager is a waste of money as the manager would under perform in the long run. Many investors, in particular institutional investors have, based on this knowledge, decided to place their assets with passive and low-cost funds. Passive funds have obtained a significant market share in the U.S. but less interest in Europe. However, there is a significant dispersion among fund managers, some perform very well and others under perform a relevant benchmark significantly. This fact has implied that many investors prefer active fund managers as they believe that they can identify and invest with a superior fund manager.

Identifying a superior investment is not an easy task. There exist many studies that evaluate various investment strategies and asset pricing anomalies. One of the most explored anomalies is the momentum effect, i.e. securities that have performed well recently are more likely to continue to outperform the market. For example, Jegadeesh and Titman (1993) show that a momentum strategy is profitable. However, the momentum effect is short-lived and abnormal returns can be created at the three- to twelve month horizon. In contrast, Conrad and Kaul (1998) show that contrarian strategies are usually profitable at longer horizons. The empirical literature, see for instance Grinblatt, Titman and Wermers (1995) and Falkenstein (1996), show that fund managers have portfolios biased towards momentum stocks in an attempt to extract the momentum effect. Interestingly, Grinblatt, Titman and Wermers (1995) show that fund managers investing in momentum stocks realized better returns.

Individual investors seem to chase past return as well. Current evidence comes from several studies that have examined the relation between past performance and aggregate net flow of capital. For example, Sirri and Tufano (1998) find that past performance is an important factor when individuals choose funds to invest in, and they show that flows in the U.S. fund market go to the best-performing funds. In line with this evidence, Chevalier and Ellison (1997) also find a positive relation between mutual fund inflows and risk-adjusted returns, but they show that the relation is convex. Some studies have tried to explain return-chasing behavior and examine whether it is profitable, while other studies attempt to explain the behavior from a psychological perspective. For example, Gilovich, Vallone and Tversky (1985) show that people systematically underestimate the chance of observing streaks, such as a run of heads in the flip of an unbiased coin, in a random sequence. Thus, they are likely to conclude that the coin is biased if they observe streaks of heads or tails when an unbiased coin is flipped. Hence, individuals are likely to believe that a fund is superior if they observe abnormal high performance. Some evidence exists to support this strategy. Zheng (1999) for example, finds that funds that receive more money subsequently perform significantly better. This suggests that return-chasing behavior would be profitable, but the examination also shows that the effect is short-lived and to a large extent due to momentum. However, the strategy of investing in the best-performing funds receive some support in the literature on performance persistence, since the main results suggest that persistence in performance is mainly concentrated to the worst performing funds, see, e.g., Hendriks, Patel and Zeckhauser (1993) and Carhart (1997).

Similar to the U.S. industry, Engström and Westerberg (2004) find a positive relation between past return and aggregate inflows to funds for the Swedish mutual fund industry. Table 4 provides additional information on drivers for this behavior by presenting the results from the multiple regression analysis of past one year return and individuals characteristics. The results show mixed evidence for age. Overall older individuals seem to exhibit a less return chasing behavior compared with younger individuals. However, this is mainly due to

the fact that older individuals invest in fixed-income and mixed funds to a larger extent than younger individuals and these categories of funds are associated with a lower past one year return compared with equity funds. In contrast, there is a significant positive relation between past return and age for individuals' equity fund portfolios. Similarly, there is mixed evidence for individuals born in Sweden compared with those born abroad. The multiple regression show that Swedes have an overall stronger return chasing behavior compared with foreign individuals, whereas the results suggest the opposite when investing in equity funds. Hence, once again the result is influenced by Swedish individuals' stronger preference for fund categories associated with a lower past return, fixed-income and mixed funds. The most pronounced finding for the personal characteristics is the difference between men and women. Men seem more opportunistic in their significantly stronger past return chasing behavior compared with women. This result holds both for equity funds and mixed funds as well as at an overall level. In contrast, there is no clear picture for the family related characteristics, having children and being married. There multiple regression analysis suggests that individuals that have children choose equity funds with high past performance but when investing in mixed funds with low past return compared with individuals that do not have children. Marriage does not seem to have an impact on individuals return chasing behavior.

The individuals' characteristics serving as a proxy for experience of financial markets and investments in funds gives a mixed picture. The multiple regression shows a positive relation between education and the average past return of individuals selected funds. This holds for the individuals' total portfolio as well as for their equity fund portfolio separately. However, less educated individuals seem to have a stronger preference for high past performance when investing in mixed and fixed-income funds. In contrast, individuals that work in the financial sector are found to be chasing past returns to a lower extent than other individuals. There is a negative relation between average past return and the dummy for employment in the financial sector. However, corresponding analysis for the individuals' total portfolio of funds is positive but due to a strong preference for equity funds among

individuals that work in the financial sector. The coefficient for income is only statistically significant for individuals' equity fund portfolio. This result suggests that the higher income the higher past return is associated with the selected equity funds. Moreover, individuals that work in the local government sector or have private pension savings are found to be more momentum investors when investing in equity or mixed funds.

3.2 Who avoid high-fee funds?

There is a constant debate on the level of fees that mutual funds charge. Investing in the financial markets is a zero-sum game if the performance is measured relative a representative benchmark. This implies that the average investor perform neutral gross of costs and under perform net costs. The fund management industry is subject to fierce competition and many argue that the average fund manager would perform similar to the average investor. This reasoning has implied increasing interest for passive and low-fee funds in order to minimize expected under performance. Hence, those individuals that invest in actively managed funds should be convinced that they have a superior ability in identifying superior fund managers that have the best ability to identify superior investment opportunities. Interestingly this is something that has been examined in previous research. Barber and Odean (2001), for example, show that investment behavior of men and women differs. Men generally believe they possess superior investment ability and that they can beat the market. Their findings suggest that men's overconfidence leads to excessive trading which causes inferior performance. This finding would in combination with the difficulties of finding superior fund managers imply that men would have a stronger preference for more active and high-fee fund managers.

Additional support for a low-fee investment strategy can be found in studies of the relation between performance and fee level. Several studies support this argument since they have found a negative and statistical significant relation between performance and fees. For instance, Dahlquist, Engström and Söderlind (2000) show that low-fee funds outperform

high-fee funds in the Swedish market. This negative relation between the fee charged and the funds' performance holds for both equity and money market mutual funds. In fact, this low-fee argument received considerable attention in the Swedish media prior to the launch of the new pension system. The funds were often accused of charging unreasonably high fees, which would imply a lower future pension. In line with the Swedish evidence, Carhart (1997) finds a negative relation between fees and performance for U.S. mutual funds. This suggests that it is rational for investors to invest in low-fee funds. Moreover, Sirri and Tufano (1998) show that U.S. investors are rational in that they are fee-sensitive; they also show that lower-fee funds and funds that reduce their fees grow faster.

There are, however, arguments and evidence that contradicts the low-fee strategy. In a Grossman and Stiglitz (1980) world we know that an efficient market will provide informed investors with superior returns in order to compensate for the costs of becoming informed. Investors investing in actively managed funds can be said to be buying an attempt to obtain information that will generate superior performance. Additional support for active management can be found in recent articles. Wermers (2000) examine a large sample of U.S. mutual funds and find evidence that support the value of active management. Interestingly, Chen, Jagadeesh and Wermers (2000) find that poor-performing and high-performing fund managers have similar stock selection abilities when they examine portfolio holdings. The main difference is that high-performing fund managers have a higher turnover and a larger share of new well-performing stocks than poor-performing fund managers. Similar to the U.S. evidence Engström (2005) finds a positive relation between performance and portfolio turnover and positive average performance for Swedish funds during 1996 to 2000.

Interestingly, the public debate on fund fees seems to have had an impact on individuals' investment decision. Engström and Westerberg (2004) document a significant and negative relation between management fee and inflow to funds for the launch of the new pension system in Sweden. Table 5 presents the empirical finding from the multiple regression

analysis of fund fees versus individuals' characteristics. We see that the coefficient for age is negative and statistically significant for the total fund portfolio as well as for the three sub portfolios, equity funds, mixed funds, and fixed-income funds. This suggests that older individuals tend to avoid high-fee funds to a larger extent compared with younger individuals. Similarly, the multiple regression analysis suggests that women tend to avoid high-fee funds to a larger extent compared with men. In line with the regression results, Figure 2 shows the relation between average fee for the total portfolio and age and gender. The multiple regression analysis show that foreign individuals invest with equity funds associated with a lower fee is interesting as one would expect language barriers and the opposite result since the public debate on fund fees were in Swedish. The two characteristics related to family situation show different results. Individuals that have children seem willing to invest with higher fee funds compared with individuals without children. This result is statistically significant for the average fee of the total fund portfolio, equity fund portfolio, and mixed fund portfolio. In contrast, no coefficient for the dummy variable "married" is statistically significant, suggesting similar attitude towards fund fees for married and unmarried individuals.

Figure 3 shows surprisingly a positive relation between average fund fee for the total fund portfolio and education. That is, for every education level that individuals complete the higher-fee funds do they invest in. The figure also confirms that men tend to invest with higher-fee funds compared to women. The multiple regression coefficients in Table 5 confirm the results in Figure 3 and show that the positive relation is statistically significant. Moreover, the positive relation between average fee and education is found statistically significant for the average selection of equity funds, mixed funds and fixed-income funds separately. Similarly, the regression analysis shows that individuals that work in the financial sector invest with higher fee funds compared with other individuals. This relation is statistically significant for the total portfolio of funds as well as for equity funds and for mixed funds separately. The results also show that individuals that have a higher income invest with higher-fee funds compared with individuals with a lower income. This is statistically

significant result for the total portfolio as well as for sub portfolios except for mixed funds. Individuals that work in the local government sector were exposed to more information to help them make similar investment decision regarding their second pillar occupational pension scheme just a few weeks before the premium pension system was launched. However, this training and public debate did not seem to have a strong impact on the investment decisions. The multiple regression analysis shows that individuals employed in the local government sector invested with higher-fee funds compared with other individuals. This relation is statistically significant for the total portfolio as well as for equity fund portfolio and mixed fund portfolio. Finally, Table 5 shows that there is a positive and statistically significant relation between the average fund fee for the total portfolio and equity portfolio and the dummy variable for private pension savings. That is, individuals that have experience of saving for their pension seem to have a stronger preference for higher-fee funds compared to other individuals.

4 The pension system during the years 2001 to 2006

The premium pension system is a growing share of the Swedish mutual fund industry. Table 6 report that the premium pension system has grown from 4.4 million individuals that invested SEK 56 billion to 5.6 million individuals that have invested SEK 267 billion. By the end of 2006, 75% of the assets were invested in equity funds, 21% in mixed and life-cycle funds and only 4% in fixed-income funds. The low allocation to fixed-income is partly due to the booming equity markets in recent years. The premium pension system has also become even popular among asset managers. By the end of 2006, 780 mutual funds was listed in the system making the investment menu for individuals very long compared with other pension systems, e.g 401k plans in the U.S.

Engström and Westerberg (2004) examined the aggregate inflow to funds and fund characteristics associated with the launch of the pension system in the fall of 2000. That study showed that individuals were fee sensitive and preferred low-fee funds. The initial investment

decision was also associated with a return-chasing behavior, however, far less pronounced than expected based on previous U.S evidence. Instead, information costs were an important determinant of fund flows. This section extends the evidence by providing summary statistics for investment decisions during the years 2001 to 2006 with respect to gross fee and one year past returns. The data cover in- and outflows of funds separately for all funds that have been subject to any flows. Total number of funds is reported in table 6 for equity, mixed & life-cycle and fixed-income funds separately. The flows refer to the net inflows as specified in table 6 but the importance of continuous investment decisions by individuals has grown. In 2001, 133 000 trades in funds were made which can be compared with the 1.8 million trades in funds during 2006.

Table 7 reports average past one-year return figure for the equity funds, mixed & life-cycle funds, fixed-income funds, and all funds. The averages are computed based on equal weighting and weighted by size of inflows and outflows, respectively. The inflows are more significant than outflows which make the result for net flows similar to those of inflows. The descriptive statistics for equity funds and all funds show higher average past return for funds associated with inflows compared with the average fund in the pension system. This suggests, in line with previous evidence, that the individuals have a return chasing behavior. Surprisingly, the averages for outflow weighted past returns are higher than both the average for the equally weighted past return of the funds in the pension system and inflow weighted past returns. This contrast previous evidence and implies that the individuals seem to sell funds that have had a superior performance. The pattern for mixed & life cycle funds and fixed-income funds are not as clear.

Table 8 reports average gross fee (i.e. the fee that the individuals see) for the equity funds, mixed & life-cycle funds, fixed-income funds, and all funds. The averages are, similarly to those for past returns, computed based on equal weighting and weighted by size of inflows and outflows, respectively. We notice a positive trend for fund fees as they increase little by little over the period from 1.58% to 1.77% for equity funds, from 0.84% to

1.09% for mixed & life-cycle funds, and from 0.79% to 0.89% for fixed-income funds. A similar positive trend can be found for inflow and outflow weighted average fee. The descriptive statistics in table 8 also show that inflow weighted fees are lower than the averages in the pension system suggesting, in line with previous evidence, that the individuals are fee sensitive in their decision making process. Interestingly, the averages for outflow weighted fee are also lower than the averages in the pension system but higher than the inflow weighted fees. This also supports previous findings of fee-averse individuals.

5 Conclusions

This paper has deepened our knowledge on individuals' behavior in the financial markets by examining investment decisions in mutual funds. Previous studies, that have not been able to identify investor type, have used aggregate data of fund flows and have found that investors tend to chase past return and low fee funds. This paper, which examines individual investors' investment decision, sheds light on potential drivers as past return and fees are evaluated against individual characteristics. The results show significant differences between men and women. Men tend to chase and invest with funds that have high past return and women invest with low fee funds. When examining individual characteristics that can serve as a proxy for familiarity and previous experience of investing in funds we find somewhat mixed results. Individuals with a higher education, higher income, are employed in the local government sector and have private pension savings chase past return to larger extent compared with other individuals when investing in equity mutual funds. However, individuals that work in the financial sector do not possess the same return chasing behavior. Interestingly, the empirical findings are consistent concerning past experience of investing in funds and attitude towards fund fees. Individuals that have a higher education, work in the financial sector, have a higher income, have private pension savings or work in the local government sector invest with higher fee funds compared to other individuals. This suggests that individuals that have more

experience of financial markets and mutual funds do not have an equally strong aversion towards fees as other individuals.

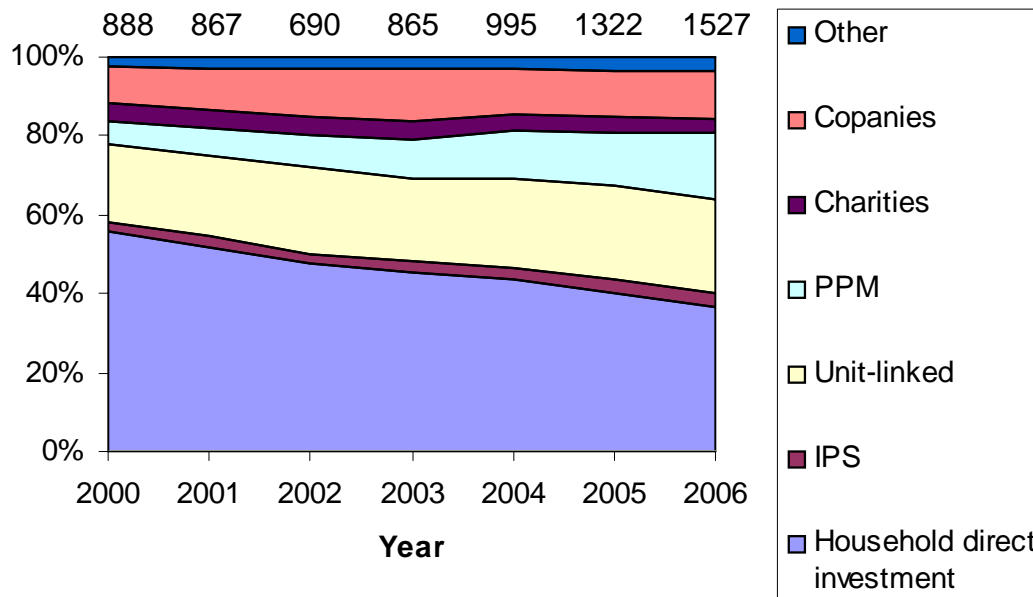
The paper also reported summary statistics for the years 2001 to 2006. This data provide additional support to the fact that individuals are fee sensitive. To some extent, the data also confirm a return chasing behavior among individual investors, however, the data surprisingly show significant outflows from funds are associated with high returns. This contrast previous evidence on return chasing behavior and imply that individuals might not be as myopic as previously suggested.

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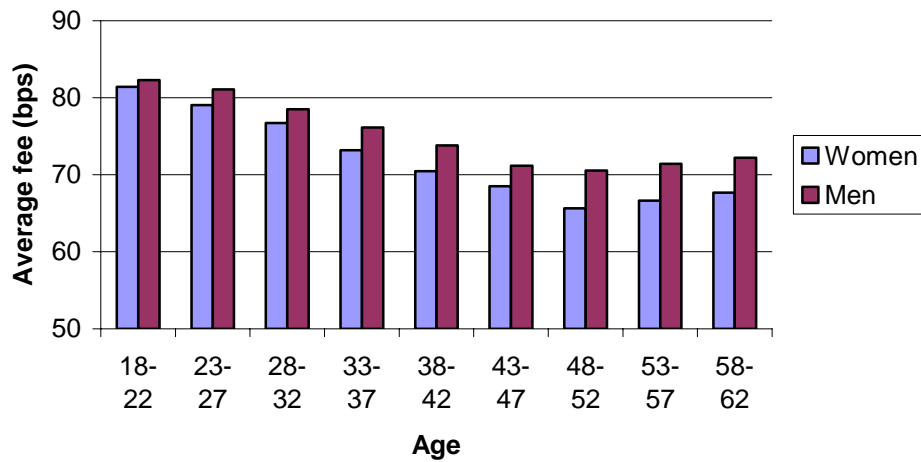
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Figure 1. Total assets in the Swedish mutual fund industry by source, SEK bn



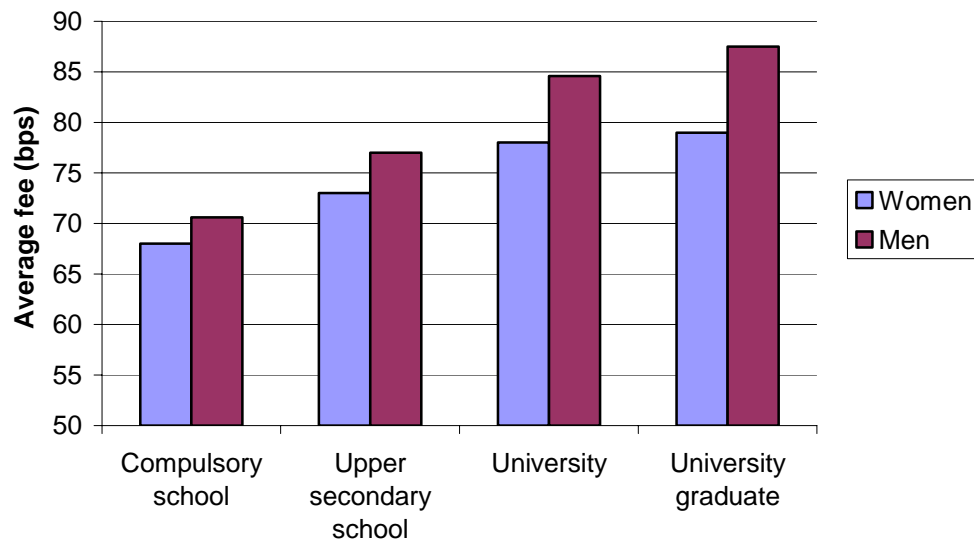
The figure shows overall size of the Swedish mutual fund industry in SEK bn per year. The figure also refer total assets to major sources; Households direct investments, Individual pension savings (IPS), unit-linked funds, investments through the Premium pension authority (PPM), charities, investments by companies, and other.

Figure 2. Average fee versus age and gender



The figure shows the average value-weighted fee (basis points) for the average individual's selected portfolio of funds. The figure separates average fee based on gender and age.

Figure 3. Average fee versus education and gender



The figure shows the average value-weighted fee (basis points) for the average individual's selected portfolio of funds. The figure separates average fee based on gender and education.

Table 1: Fund characteristics

| | All funds | Equity funds | Mixed funds | Fixed-inc. Funds |
|-------------------|-----------|--------------|-------------|------------------|
| No. of funds | 460 | 312 | 85 | 63 |
| Fee (bps) | | | | |
| Minimum | 15 | 20 | 40 | 15 |
| 25% percentile | 57 | 85 | 48 | 40 |
| Median | 104 | 120 | 55 | 56 |
| Average | 97 | 111 | 70 | 60 |
| 75% percentile | 126 | 133 | 96 | 75 |
| Maximum | 397 | 397 | 149 | 134 |
| Return (%) | | | | |
| Minimum | -14 | -6 | -9 | -14 |
| 25% percentile | 12 | 28 | 6 | -8 |
| Median | 33 | 52 | 21 | -2 |
| Average | 43 | 58 | 23 | -3 |
| 75% percentile | 65 | 75 | 42 | 3 |
| Maximum | 272 | 272 | 61 | 17 |

The table shows mutual fund characteristics in the public defined contributions system in Sweden. The characteristics is calculated for total number of funds (All), only equity funds, only mixed funds, and only for fixed-income funds. No. refers to the total number of funds. Fee is the management fee in %. Return refers to past one year return (1999).

Table 2. Distribution of average fee and past return for individuals' fund account

| | All funds | Equity funds | Mixed funds | Fixed-inc. funds |
|--------------------|-----------|--------------|-------------|------------------|
| Fee (bps) | | | | |
| No. of individuals | 98565 | 92663 | 26636 | 6066 |
| Minimum | 15 | 20 | 40 | 15 |
| 25% percentile | 48 | 49 | 40 | 30 |
| Median | 73 | 78 | 48 | 40 |
| Average | 76 | 80 | 58 | 41 |
| 75% percentile | 100 | 107 | 63 | 48 |
| Maximum | 198 | 245 | 141 | 134 |
| Return (%) | | | | |
| No. of individuals | 87328 | 81404 | 17520 | 4859 |
| Minimum | -13 | -6 | -9 | -14 |
| 25% percentile | 46 | 31 | 23 | -3 |
| Median | 57 | 48 | 31 | -1 |
| Average | 58 | 48 | 29 | 1 |
| 75% percentile | 69 | 61 | 36 | 3 |
| Maximum | 272 | 272 | 44 | 17 |

The table shows distribution of average mutual fund characteristics for individuals' portfolios of funds. The characteristics is calculated for total number of funds (All), only equity funds, only mixed funds, and only for fixed-income funds. No. refers to the total number of individuals. Fee is the management fee in %. Return refers to past one year return (1999).

Table 3: Distribution of individuals' characteristics in the premium pension system in 2000.

| Category | Age | | | | | | | | | All |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------------|
| | 18–22 | 23–27 | 28–32 | 33–37 | 38–42 | 43–47 | 48–52 | 53–57 | 58–62 | |
| Women | 0.9 | 4.8 | 6.1 | 6.8 | 6.1 | 6.1 | 6.3 | 6.6 | 4.8 | 48.5 |
| Men | 1.1 | 5.0 | 6.6 | 7.3 | 6.3 | 6.4 | 6.6 | 7.1 | 5.1 | 51.5 |
| Child | 0.0 | 0.6 | 3.5 | 7.3 | 8.0 | 7.8 | 5.3 | 2.4 | 0.5 | 35.4 |
| No child | 2.0 | 9.2 | 9.3 | 6.8 | 4.4 | 4.7 | 7.6 | 11.3 | 9.3 | 64.6 |
| Married | 0.0 | 0.8 | 3.4 | 5.8 | 6.3 | 7.2 | 8.1 | 8.9 | 6.7 | 47.2 |
| Unmarried | 2.0 | 9.0 | 9.4 | 8.3 | 6.0 | 5.3 | 4.8 | 4.8 | 3.2 | 52.8 |
| Born in Sweden | 1.9 | 9.1 | 11.4 | 12.3 | 10.6 | 10.7 | 11.2 | 12.4 | 8.8 | 88.4 |
| Born elsewhere | 0.1 | 0.7 | 1.4 | 1.7 | 1.8 | 1.8 | 1.7 | 1.4 | 1.0 | 11.6 |
| Compulsory school | 0.5 | 1.0 | 1.6 | 1.9 | 2.1 | 2.6 | 2.9 | 4.0 | 3.6 | 20.2 |
| Upper secondary sch. | 1.5 | 6.6 | 7.2 | 7.9 | 6.5 | 5.8 | 6.0 | 5.9 | 4.0 | 51.4 |
| University | 0.0 | 1.8 | 2.6 | 2.5 | 2.1 | 2.1 | 1.9 | 1.6 | 1.0 | 15.6 |
| University degree | 0.0 | 0.4 | 1.4 | 1.7 | 1.7 | 1.9 | 2.1 | 2.3 | 1.3 | 12.8 |
| Financial sector | 0.0 | 0.1 | 0.2 | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.2 | 1.8 |
| Local govern. sector | 0.3 | 1.9 | 2.4 | 3.0 | 3.3 | 3.6 | 3.8 | 3.8 | 2.6 | 24.7 |
| Other sectors | 1.7 | 7.9 | 10.1 | 10.8 | 8.9 | 8.7 | 8.8 | 9.6 | 7.0 | 73.5 |
| Income, SEK 000s | | | | | | | | | | |
| 0-120 | 1.7 | 4.6 | 3.2 | 2.7 | 2.1 | 1.6 | 1.5 | 1.5 | 1.1 | 20.0 |
| 120-166 | 0.2 | 2.2 | 3.0 | 3.2 | 2.7 | 2.3 | 2.2 | 2.3 | 1.9 | 20.0 |
| 166-203 | 0.1 | 1.6 | 2.7 | 2.8 | 2.5 | 2.7 | 2.7 | 2.8 | 2.1 | 20.0 |
| 203-253 | 0.0 | 1.0 | 2.4 | 2.9 | 2.5 | 2.8 | 3.0 | 3.2 | 2.2 | 20.0 |
| 253- | 0.0 | 0.3 | 1.5 | 2.6 | 2.7 | 3.0 | 3.5 | 3.9 | 2.5 | 20.0 |
| Private pens. saving. | 0.1 | 1.6 | 3.8 | 5.1 | 4.7 | 5.0 | 5.3 | 5.8 | 3.9 | 35.3 |
| No private pens. sav. | 1.9 | 8.2 | 9.0 | 9.0 | 7.7 | 7.5 | 7.6 | 7.9 | 5.9 | 64.7 |

The table shows the distribution of characteristics of individuals entitled to participate in the pension system in 2000. Each characteristic is divided by age categories. The characteristics are: gender, children, marital status, country of birth, education, employment in financial sector, employment in local government sector, income, private pension savings, and age.

Table 4: Multiple regression of return and individuals' characteristics

| | All fund return | | Equity fund return | | Mixed fund return | | FI fund return | |
|------------------|-----------------|---------|--------------------|---------|-------------------|---------|----------------|---------|
| | Coeff | Std err | Coeff | Std err | Coeff | Std err | Coeff | Std err |
| Age | -31* | 1 | 17* | 1 | -10* | 1 | 7* | 1 |
| Child | -31 | 17 | 99* | 18 | -199* | 16 | 69* | 15 |
| Married | 11 | 18 | 20 | 19 | 0 | 16 | -30** | 14 |
| Sweden | 88* | 27 | -249* | 29 | 41 | 23 | 20 | 20 |
| Gender | -352* | 16 | -277* | 18 | -63* | 16 | 0 | 14 |
| Education | 97* | 9 | 135* | 21 | -32* | 9 | -21* | 8 |
| Financial | 208* | 52 | -479* | 56 | -7 | 65 | 13 | 54 |
| Income | -4 | 7 | 24* | 7 | 12 | 8 | 2 | 7 |
| Public | 58* | 18 | 211* | 19 | 99* | 17 | -7 | 14 |
| Savings | -28 | 16 | 230* | 17 | 17 | 15 | -13 | 14 |

The table shows the results from the multiple regression of average past one year return (basis points) versus individuals' characteristics. The average return is calculated for all funds in each individuals fund portfolio and for equity, mixed, and fixed-income funds separately in each individual's portfolio. The characteristics are age (number of years), a dummy for individuals that have children, are married, are born in Sweden and are gender (dummy for women). There is also a variable for education, which consist of four levels and a dummy for individuals that work in the financial sector. The dummy "Public" refers to individuals that work in the local government sector and "Savings" refer to individuals that have private pension savings. Income is taxable income in 1998. The table report coefficient and associated standard error. (*) refers to statistical significance at the 1% level and (**) refers to statistical significance at the 5% level.

Table 5: Multiple regression of fees and individuals' characteristics

| | All fund fee | | Equity fund fee | | Mixed fund fee | | Fixed-inc. fund fee | |
|------------------|--------------|---------|-----------------|---------|----------------|---------|---------------------|---------|
| | Coeff | Std err | Coeff | Std err | Coeff | Std err | Coeff | Std err |
| Age | -0,32* | 0,01 | -0,08* | 0,01 | -0,55* | 0,02 | -0,11* | 0,02 |
| Children | 1,93* | 0,21 | 2,49* | 0,23 | 1,71* | 0,38 | 0,66 | 0,43 |
| Married | -0,26 | 0,22 | 0,08 | 0,24 | -0,69 | 0,38 | -0,14 | 0,42 |
| Sweden | 1,54* | 0,33 | 1,10* | 0,36 | 0,61 | 0,56 | -1,26* | 0,58 |
| Gender | -3,07* | 0,21 | -2,44* | 0,22 | -0,55 | 0,38 | 0,09 | 0,43 |
| Education | 4,70* | 0,11 | 4,84* | 0,12 | 1,41* | 0,20 | 0,91* | 0,24 |
| Financial | 7,44* | 0,64 | 5,59* | 0,68 | 7,91* | 1,38 | 2,80 | 1,62 |
| Income | 1,15* | 0,08 | 1,26* | 0,09 | -0,02 | 0,17 | 0,65* | 0,23 |
| Public | 3,22* | 0,22 | 3,12* | 0,24 | 2,48* | 0,40 | 0,55 | 0,44 |
| Savings | 0,43** | 0,20 | 1,05* | 0,21 | 0,51 | 0,35 | 0,25 | 0,40 |

The table shows the results from the multiple regression of average management fee (basis points) versus individuals' characteristics. The average fee is calculated for all funds in each individuals fund portfolio and for equity, mixed, and fixed-income funds separately in each individual's portfolio. The characteristics are age (number of years), a dummy for individuals that have children, are married, are born in Sweden and gender (dummy for women). There is also a variable for education, which consist of four levels and a dummy for individuals that work in the financial sector. The dummy "Public" refers to individuals that work in the local government sector and "Savings" refer to individuals that have private pension savings. Income is taxable income in 1998. The table report coefficient and associated standard error. (*) refers to statistical significance at the 1% level and (**) refers to statistical significance at the 5% level.

Table 6: PPM during 2001 to 2006

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------------------------------|------|------|------|------|------|------|
| No of investors | 4913 | 5109 | 5259 | 5388 | 5505 | 5618 |
| AUM | 65 | 59 | 94 | 125 | 192 | 267 |
| Inflow | 18 | 20 | 21 | 22 | 23 | 49 |
| % to Equity | 75 | 74 | 75 | 71 | 72 | 71 |
| % to Mixed & life-cycle | 22 | 21 | 20 | 23 | 10 | 22 |
| % to Fixed-income | 3 | 5 | 5 | 5 | 6 | 8 |
| Tot. No. Funds | 597 | 644 | 626 | 670 | 727 | 780 |
| Equity Funds | 217 | 282 | 323 | 359 | 437 | 494 |
| Mixed and life-cycle funds | 52 | 54 | 62 | 63 | 70 | 74 |
| Fixed-income funds | 45 | 65 | 81 | 92 | 102 | 110 |

The table reports the number of investors (thousands) in the PPM system, assets under management (AUM) in SEK bn. The table also shows net inflow (SEK bn) to the system and the per cent of inflow that the equity, mixed & life-cycle and fixed-income funds receive respectively. Total number of funds is reported as well as number of funds in the categories equity, mixed & life-cycle and fixed-income funds that are subject to in or outflow during the years 2001 to 2006.

Table 7: Average past return and flows

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average |
|--------------------------------|------|------|-------|------|------|------|---------|
| <u>Equally weighted</u> | | | | | | | |
| Equity funds | -4.2 | -8.9 | -31.3 | 21.1 | 10.0 | 40.2 | 4.5 |
| Mixed & life-cycle funds | -0.2 | -6.4 | -23.9 | 11.6 | 6.5 | 24.7 | 2.1 |
| Fixed-income funds | 8.8 | 7.1 | 2.0 | 1.7 | 3.1 | 8.1 | 5.2 |
| All funds | -1.3 | -5.8 | -24.3 | 16.8 | 8.5 | 33.5 | 4.6 |
| <u>Inflow-weighted</u> | | | | | | | |
| Equity funds | 1.8 | -7.7 | -32.2 | 26.6 | 16.5 | 49.5 | 9.1 |
| Mixed & life-cycle funds | -0.8 | -8.3 | -27.2 | 12.3 | 5.6 | 25.6 | 1.2 |
| Fixed-income funds | 8.3 | 5.3 | 7.0 | 3.7 | 4.2 | 3.6 | 5.3 |
| All funds | 1.5 | -7.1 | -28.3 | 22.5 | 13.8 | 41.0 | 7.2 |
| <u>Outflow-weighted</u> | | | | | | | |
| Equity funds | 5.0 | 3.9 | -25.9 | 31.2 | 19.2 | 54.1 | 14.6 |
| Mixed & life-cycle funds | -0.6 | -7.9 | -26.1 | 14.1 | 7.3 | 25.4 | 2.0 |
| Fixed-income funds | 8.5 | 6.1 | 7.5 | 3.4 | 4.3 | 4.0 | 5.5 |
| All funds | 4.8 | 2.9 | -20.8 | 27.3 | 16.5 | 44.8 | 12.6 |

The table shows the average past one year return (%) (i.e. lagged one year, 2001 reports return figures for the year 2000) based on and equal weighting of funds that was subject to any in- or outflow. The table also report average past one year return weighted by the size of in- and outflows respectively. The averages are reported for equity funds, mixed and life-cycle funds, fixed-income funds, and all funds for each of the year from 2001 to 2006.

Table 8: Average gross fee and flows

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | Average |
|--------------------------------|------|------|------|------|------|------|---------|
| <u>Equally weighted</u> | | | | | | | |
| Equity funds | 1,58 | 1,61 | 1,62 | 1,70 | 1,74 | 1,77 | 1,67 |
| Mixed & life-cycle funds | 0,84 | 0,94 | 0,95 | 0,98 | 1,01 | 1,09 | 0,97 |
| Fixed-income funds | 0,79 | 0,80 | 0,84 | 0,83 | 0,83 | 0,89 | 0,83 |
| All funds | 1,35 | 1,38 | 1,40 | 1,48 | 1,51 | 1,55 | 1,45 |
| <u>Inflow-weighted</u> | | | | | | | |
| Equity funds | 1,09 | 1,14 | 1,24 | 1,40 | 1,65 | 1,60 | 1,35 |
| Mixed & life-cycle funds | 0,38 | 0,38 | 0,40 | 0,38 | 0,40 | 0,40 | 0,39 |
| Fixed-income funds | 0,48 | 0,48 | 0,48 | 0,43 | 0,40 | 0,41 | 0,45 |
| All funds | 0,94 | 0,98 | 1,06 | 1,20 | 1,40 | 1,34 | 1,15 |
| <u>Outflow-weighted</u> | | | | | | | |
| Equity funds | 1,35 | 1,47 | 1,56 | 1,65 | 1,78 | 1,76 | 1,59 |
| Mixed & life-cycle funds | 0,52 | 0,50 | 0,50 | 0,45 | 0,46 | 0,54 | 0,49 |
| Fixed-income funds | 0,56 | 0,55 | 0,53 | 0,46 | 0,40 | 0,43 | 0,49 |
| All funds | 1,17 | 1,27 | 1,30 | 1,45 | 1,52 | 1,50 | 1,37 |

The table shows the average gross fee (%) (the fee is subject to a discount based on total investment by PPM) based on and equal weighting of funds that was subject to any in- or outflow. The table also report average gross fee weighted by the size of in- and outflows respectively. The averages are reported for equity funds, mixed and life-cycle funds, fixed-income funds, and all funds for each of the year from 2001 to 2006.