Swiss dentists and managers:

Private investor profiles

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Abstract

This paper investigates whether dentists are different investors than managers. The results show that there are indeed systematic differences between these two groups of professionals in terms of perceived competence, desire to be informed, investment criteria, investment strategies, reliance on investment advisers, and risk aversion. Within each group, there are also differences between men and women, although not in terms of risk aversion. We contrast these results with those obtained when grouping investors according to the more traditional wealth and age categories. Investors in these categories differ as well, but by no means more substantially than when we separate them into dentists and managers.

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Abstract

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"Dubbed the 'Belgian dentist,' Belgium's archetypal investor is middle class and traditionally conservative in approach."

1.   Introduction

The wealth management industry has long been interested in ways to segment the market to define business models that better cater to the needs of investors. The traditional classification is based on wealth and distinguishes categories such as ultra-high net worth, high net worth, affluent, mass affluent, and mass individuals. Private banking folklore suggests an alternative classification, namely the profession of individual investors. This paper studies the characteristics of professionals with university education in dentistry vs. those of professionals with a business or economics degree, and examines whether they differ significantly. We then investigate whether we find sharper differences when we group investors by age and, as traditionally done, by wealth.

The introductory quote that reports the clichéd image of the Belgian dentist (a conservative, high-income individual keen on minimizing taxes and maximizing returns) suggests that individual investors with different professional backgrounds could differ significantly. Various consultants, including accountants and legal experts, appear to believe in those differences and offer specialized services for medical doctors. And scam artists, apparently, think along the same lines, at least with regard to dentists. In 2004, the Wall Street Journal published an interview with a confessed scam artist. When asked whether only uneducated or naïve or stupid people would fall for deals promising a return on investment of 20% or more per 90 days, the scam artist said: *"Totally not true. The majority of clients that I dealt with over the years were white-collar types of people. They were people who were already successful. They were people who had cash -- had made money -- and had worked very hard for it. They were doctors, they were dentists. [That] was a big group we went after -- dentists. Dentists love to be loved by people. (...) They sure do, because*

nobody likes going to the dentist. They're the easiest group to sell. There are companies that just sell [investments] to dentists."[1]

Assessing whether professionals such as dentists belong to different investor clusters is of obvious practical relevance not only for the wealth management industry but also for regulators. It is also theoretically relevant since it would enable academics to better understand investor behavior.

Dentists could be a homogeneous investor group as they share the same educational background and, by self-selection, might have similar preferences. In fact, if we believe the introductory quote, they are more risk-averse than other investors, possibly because they are less familiar with finance matters.

A group of professionals that differs significantly from dentists along some of the dimensions we just mentioned are those with a university degree in business or economics. Since most of them presumably have a management job, we refer to them as "managers" for short.[2] As in the case of dentists, they are well-to-do, face considerable asset allocation problems, and would seem to be equally well-equipped to understand these problems. Unlike dentists, however, they face money matters almost daily. They should, therefore, be better informed and more comfortable in dealing with issues related to personal finance.

If dentists and managers indeed have different investor characteristics, then wealth managers could use that information to better calibrate their communication and their products and services in dealing with them. For example, managers would seem to be better suited for a more technical communication. And dentists, assuming they are indeed more risk averse than managers, might be more open to risk-diversification strategies.

The groups of dentists and managers could be partitioned further. One possible partition is by gender. The question of whether investment behavior differs by gender, in particular the question whether women are more risk averse than men, is still fairly controversial, as women are generally less interested in financial matters and risk aversion seems to be inversely correlated with interest and perceived

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[1]   Confessions of a Scam Artist, *The Wall Street Journal*, August 9, 2004.
[2]   Strictly taken, the difference between the two groups is university education. That is also the criterion used to assign investors to the two groups in the subsequent empirical analysis. We assume that these differences in educational background translate into differences in professions.

competence.[3] Risk aversion also correlates with other potentially complicating investor characteristics such as demographic factors,[4] information, and education.[5] Our database enables us to investigate investor profiles of men and women that take into account all these various aspects.

To compare the investment behavior of dentists and managers, we use data from a large survey of Swiss professionals.[6] Specifically, we examine the motivation to save money, the risk preference, the perceived competence, and the interest for financial matters. We analyze the inclination to seek the help of others, and inquire the investment strategies and home bias. As a contrast, we investigate the investment characteristics of these individuals when, instead of classifying them by professional background, we sort them into groups of different age and, as done traditionally, different wealth.

Among other things, our results indicate that dentists feel less competent than managers do, yet they are less willing to inform themselves. This could explain why they rely more often on a financial advisor. Consistent with our preceding arguments, dentists are also more risk averse and more convinced about the benefits of risk diversification than managers are. They display also more home bias, but they care less for familiar stocks.

More importantly, we find that the difference in investor characteristics between dentists and managers is at least as sharp as that between investors of different wealth, and substantially sharper than that between investors of different age. Hence, the profession of an investor is at least as discriminating with respect to investor preferences as his wealth or age are. Finally, the data show that within each profession, females differ significantly in their investment profiles from their male colleagues. Once we control for interest and perceived competence, however, there is no difference in risk or ambiguity aversion across the two genders.

The remainder of the paper is organized as follows. Section 2 describes the experiment we propose. Section 3 discusses the database. Section 4 illustrates investor characteristics of dentists and managers. Section 5 uses a multivariate

[3]   See, among others, Hinz, McCarthy, and Turner (1996), Jianakoplos and Bernasek (1998), Bajtelsmit, Bernasek, and Jianakoplos (1999), Schubert, Brown, Gysler, Brachinger (1999), and Hariharan, Chapman, and Domian (2000).
[4]   These factors include age, marital status, number of children, and race. See, among others, Jianakoplos and Bernasek (1998), and Sundén and Surette (1998).
[5]   See, among others, Johnson and Powell (1994), Olsen and Cox (2001), Dwyer, Gilkeson, and List (2002), Gysler, Kruse, and Schubert (2002), Atkinson, Boyce Baird, and Frye (2003).
[6]   See Joerg (2005).

approach to investigate differences across investors grouped by profession and, alternatively, by wealth and age. Section 6 provides conclusions.

2.   The experiment

The purpose of the paper is to investigate whether instead of classifying investors in groups of different wealth or age, it could be useful to distinguish them by profession. We therefore look for differences in the investor profiles of dentists and managers. The variables of relevance include interest in financial matters, competence, preference for investment strategies, and risk aversion. We also examine whether there are differences in investor profiles between men and women in either of the two professions. We then analyze whether, as implied by current practices, we can find differences between groups of investors of different wealth and different age. The variables that define the investor profiles of interest are obtained from a survey of Swiss professionals conducted by Joerg (2005). The questionnaire asked direct questions about investment behavior. Respondents could mark one or more of the possible answers they were offered for each question. There were eight groups of questions, namely:

(a)   Part one covered the experience, interest, perceived competence, and the type of financial assets the individual had held in the past five years;

(b)   Part two examined the reasons for saving money;

(c)   Part three checked one's investment criteria. It also investigated the presence of home bias, whether investors preferred to invest in stocks of firms they knew, and whether they had a preference for firms that behave in a socially responsible way;

(d)   Part four reviewed how and where investors obtained the relevant information. It also asked whether the investor relied on the partner's advice or on that of a financial advisor, and whether the investor had signed an asset management mandate;

(e)   Part five reviewed general investment behavior. The questionnaire inquired, for example, whether there was any regret in having sold too early or too late in the past. Moreover, individuals were asked to provide detailed information about the composition of their personal portfolio of assets;

(f)   Part six covered investment behavior under hypothetical circumstances. For example, respondents were asked to choose among different portfolios with different risk-return characteristics;

(g)   Part seven inquired into the role of the individual's investment advisor;

(h)   Finally, part eight asked demographic questions.

We begin with a univariate analysis of various behavioral traits of dentists and managers as investors. First, we want to know whether dentists are less experienced, less interested, and feel less competent than managers about asset management matters.

Second, we study whether dentists have different risk preferences than managers do. If lack of knowledge induces people to minimize the possibility of undesirable outcomes, dentists should be more risk averse than managers.

Third, we inquire into whether dentists are more or less inclined than managers to hold individual stocks. On the one hand, assuming they know less about financial matters, they might also know less about the benefits of risk diversification and hence fail to diversify properly. On the other hand, this lack of knowledge might lead them to ignore individual differences among individual stocks and to treat them as a generic asset class.

Fourth, we examine different investment criteria. Lack of knowledge would suggest that, if dentists decide to hold individual stocks, they should prefer stocks of firms they know or firms of their own country (home bias). We also want to know whether dentists are more sensitive to questions concerning the social responsibility of the firms they invest in than managers are—concern for public health could correlate with concern about social responsibility.

Fifth, we shed light on possible strategies investors follow when defining their investments. Given their experience level and perceived competence, we would expect dentists to follow less sophisticated strategies.

Sixth, we examine whether limited interest and lack of competence induce dentists to seek more often the help of financial advisors or of the partner.

And seventh, we analyze possible gender differences within each group of professionals with respect to interest, experience, and perceived competence.[7]

After the univariate analysis, we examine the investment behavior of dentists and managers in a multivariate context. We want to know whether there are differences in that behavior and whether they are as pronounced as those we observe when we follow the common practice of sorting individual investors in different wealth or age groups.

3.   Sample characteristics

The survey was conducted in the summer of 2003. Joerg (2005) sent a questionnaire to 10,000 male and female academics in Switzerland with different educational backgrounds. Specifically, she contacted 2,000 dentists and medical doctors, 2,000 managers/economists, 2,000 lawyers, 2,000 pharmacists, and 2,000 high-school teachers. 2,316 individuals filled out the questionnaire, for a 23.2% response rate. 49.1% of the respondents are women, 50.9% men. This paper focuses on the 317 dentists (160 men, 157 women) and 614 managers (318 men, 296 women) in the overall sample.

For our analysis, a survey-approach has obvious limitations but also a number of precious advantages. The limitations include the fact that there might be sample selection bias. The individuals who are willing to fill out a questionnaire might be those more interested in the subject or those with the lowest opportunity costs of time. Moreover, one can never be sure that respondents provide truthful answers or understand the questions correctly. The questionnaire we depend on tries to limit at least the latter two problems by giving the respondents the opportunity to state the questions they do not understand and the questions that are too personal to answer. Based on what the respondents said, these two problems can be excluded. Still, the possibility of sample selection bias remains. We believe that the advantages of a survey, namely the ability to ask direct questions outweigh its limitations.

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[7]   The literature shows that gender differences in investment behavior are often associated with differences in knowledge, perceived competence, or interest. See, for example, Dwyer, Gilkeson, and List (2002), Gysler, Kruse, and Schubert (2002), or Joerg (2005).

4.   Univariate results

As pointed out above, the purpose of this section is to document differences between the samples of dentists and managers, and to show that they go in the hypothesized direction. There are reasons to believe that dentists and managers belong to different investor clusters.

4.1   Experience, interest, and perceived competence

Dentists have less trading experience and they are also less interested in investment matters. Table 1 documents this phenomenon. It shows that 59% of dentists have traded at some point in the past compared to 83% of managers (the binary variable EXP equals 1 if the person in the sample has traded on the stock exchange in the past, and it equals 0 otherwise). Moreover, it reports that only about 46% of dentists are strongly interested in investment subjects compared to roughly 68% of managers (the binary variable INT equals 1 if the person in the sample is deeply interested in investment-related topics, and it equals 0 otherwise). These differences are not only statistically significant, they are also sizable. The difference in perceived competence is even larger: only 16% of the responding dentists feel competent in money matters; the corresponding proportion among managers is more than three times as large, namely about 58% (the binary variable COMP equals 1 if the person in the sample feels competent in personal finance matters, and it equals 0 otherwise).

4.2   Risk preferences

The preliminary results also indicate that, consistent with the reputation of their Belgian colleagues, Swiss dentists are substantially more risk averse than Swiss managers. According to Table 2, 74% of dentists focus mainly on safety in their investments; the corresponding percentage among managers is 58% (the variable SAFE1 equals 1 if the person in the sample is mainly concerned about safety, and it equals 0 otherwise). Moreover, 69% of dentists want to avoid investments where they could lose money; only 50% of managers feel the same way (the variable SAFE2 equals 1 if the person in the sample avoids investments that could lead to financial losses, and it equals 0 otherwise).   Finally, the table suggests that recent market developments have probably exacerbated investors' risk aversion: 81% of dentists, compared to 72% of managers, have become more cautious following the recent

market decline. The difference is significant, although de facto both groups of investors have become more cautious (the variable VULNERABLE equals 1 if the market turmoil of 2000-2002 has made the person in the sample more cautious, and it equals 0 otherwise).

4.3   Portfolio composition

Weaker interest and smaller perceived competence would seem to imply reluctance in trading risky securities. Figure 1 reports the fraction of total wealth invested in stocks by the two groups of professionals. As one can see, roughly 55% of dentists hold no stocks at all; the corresponding fraction among managers is only 31%. The difference is statistically significant. The figure also shows that the fraction of managers with a given level of stockholdings is larger than that of dentists at any level, except for the few cases of people reporting that they hold 100% of their wealth invested in stocks (0.3% of dentists, compared to 0.2% of managers).

4.4   Investment criteria

We hypothesized that, not feeling competent, dentists might have a preference for stocks of firms they can somehow associate with. In particular, we argued that dentists should exhibit a stronger home bias (the binary variable HOMEBIAS equals 1 if the person in the sample has a preference for securities of his/her country, and it equals 0 otherwise). Table 3, however, indicates that this is not the case. There is essentially no statistical difference between the two groups of investors along this dimension. There is also no differential preference for stocks that dentists or managers know (the binary variable STCKSKNOWN equals 1 if the person in the sample has a preference for stocks he/she knows, and it equals 0 otherwise). Dentists, however, put a stronger emphasis on social responsibility as a criterion for buying stocks than managers do (40% compared to 29%). This is consistent with the notion that concern about public health correlates with concern about social responsibility (the binary variable SOCRESP equals 1 if the person in the sample invests only in stocks of firms that are socially responsible, and it equals 0 otherwise).

4.5   Investment strategy

Our survey also sheds light on the possible strategies that investors follow in defining their equity investment. If dentists feel uninformed and have the impression

they are not too competent, they will probably not try to outguess the market. This prediction does not necessarily apply to managers. Table 4 lends some support to this hypothesis. Dentists appear to be more trustful of the market and to refrain from contrarian strategies—26% of them claim that stocks that have just fallen in price are interesting investment opportunities, which is about half the 44% observed among managers (the variable CONTRA equals 1 if the person in the sample finds stocks that fell recently in price especially interesting, and it equals 0 otherwise). Consistent with the claim that they trust the market, dentists appear to engage marginally more often in momentum strategies than managers do, namely 14% compared to 9% (the variable MOMENT equals 1 if the person in the sample finds stocks that rose recently in price especially interesting, and it equals 0 otherwise).

4.6   Seeking investment advice

Since dentists feel less competent, we would expect them to rely more often on the advice of people they perceive as being competent and to seek the help of investment professionals. The evidence bears out also this prediction. According to Table 5, roughly 61% of dentists have a financial advisor, compared to only 28% of managers (the binary variable FINAD equals 1 if the person in the sample relies on a financial advisor for investment decisions, and it equals 0 otherwise). Moreover, 29% of dentists have signed an asset management mandate, compared with only 14% among managers (the variable MGMTMAND equals 1 if the person in the sample has signed an asset management mandate, and it equals 0 otherwise). Both differences are statistically significant.

According to Table 5, neither dentists nor managers are very eager to rely on the tips of their colleagues (17% of dentists do heed the advice of colleagues, compared to 14% of managers). The variable COLLEAGUES equals 1 if the person in the sample relies on his/her colleague's advice for investment decisions, and it equals 0 otherwise. In the case of dentists, this is not necessarily surprising if they perceive their colleagues as financially incompetent as they believe themselves to be. The table shows, however, that dentists are more likely to listen to their partner than managers are (the variable PARTAD equals 1 if the person in the sample relies on the partner's advice for investment decisions, and it equals 0 otherwise). Significantly fewer managers feel the same way (the relative percentages are 33% of dentists vs. 18% of managers).

4.7   Differences by gender

When we partition the samples of dentists and managers by gender, we find significant differences. This is true regardless whether we look at dentists or managers. Gender might therefore be a valuable criterion for subdividing the investor clusters in question. Let us consider, for instance, the sample of dentists (Table 6). As one can see, the ratio of male to female dentists with trading experience and interest in financial matters is about 2 to 1 (31% of male dentists, for example, are deeply interested in financial investments compared to 15% of female dentists). The difference is statistically significant. In contrast, neither male nor female dentists believe they understand much about investment questions.

Table 7 replicates the investigation of Table 6 for the sample of managers. The results are the same, except for the question concerning the perceived competence in financial matters—the difference between males and females is now statistically significant: fewer females feel competent compared to their male counterparts.

5.   Multivariate results

The preceding analysis suggests that the investor profile of dentists differs from that of managers. It is not clear, however, whether there is a difference in all the characteristics we investigated, or whether a few differences drive all our observations. For example, dentists in our sample might be older than managers, which could explain their greater risk aversion or the comparatively moderate interest for investment matters.   To answer this question, we turn to a multivariate analysis of investor behavior. We want to know whether there are differences in that behavior and why. We then ask whether these differences are less pronounced than those we observe when we follow the common practice of sorting individual investors by wealth and age. We also investigate whether female dentists and female managers have different investment preferences than their male colleagues. The purpose of that inquiry is to see whether dentists and managers can be further subdivided by gender.

5.1   Investor profiles of dentists and managers

5.1.1   Replication of the univariate analysis

We begin the analysis with a multivariate investigation of the relations discussed in the preceding section. Table 8 presents the results of estimating a binary

logistic regression to distinguish between dentists and managers. The dependent variable (DENT) equals 1 if the person under analysis is a dentist, and equals zero if the person is a manager. The four columns in the table refer to regression specifications that explore different measures of risk.

Column (1) of the table illustrates that dentists have just about the same trading experience and interest for financial matters as managers do: the coefficients of both EXP and INT are statistically insignificant.[8] However, they feel significantly less competent (the coefficient of the variable COMP is negative and significant with confidence better than 0.99). Possibly as a consequence of this belief of relative incompetence, they appear to have more pronounced home bias (the coefficient of the variable HOMEBIAS is positive and significant with confidence 0.95): as pointed out above, nationality could be the only thing they know about the firms in their portfolios.

The impression of poor competence can also explain other differences from managers. Namely first, dentists are marginally less inclined to investing in familiar stocks (the coefficient of STCKSKNOWN is negative and significant with confidence close to 0.90). Presumably, there are not many stocks that dentists feel particularly familiar with in the first place. Second, dentists have more often an investment advisor than managers do (the coefficient of FINAD is positive and significant with confidence 0.99). The variables CONTRA and MOMENT have also significant or marginally significant coefficients, but this will change in later specifications.

Dentists are similar to managers when it comes to their declared social responsibility (the coefficient of SOCRESP is statistically insignificant), their reliance on the partner's advice (the coefficient of PARTAD is statistically insignificant), and their inclination to sign asset management mandates (the coefficient of MGMTMAND is insignificant). The first column of the table also shows that dentists seem to have the same risk preferences as managers have when we measure these preferences with the binary variable SAFE2 (the coefficient of this variable is statistically insignificant). Finally, the significant coefficient associated with LNWEALTH (defined as the natural logarithm of assets, including housing) suggests that dentists are wealthier than managers. We use this variable as a control.

A look back at our univariate analysis shows that most of the patterns we discovered there show up also in our multivariate analysis. Unlike in the univariate

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[8]   Unless otherwise stated, statistical significance is that associated with confidence of 0.90 or better.

analysis, however, we find no difference in, for example, interest and experience (the coefficients of INT and EXP are insignificantly different from zero), the frequency of management mandates (the coefficient of MGMTMAND is insignificantly different from zero), the reliance on the partner's opinion (the coefficient of PARTAD is insignificantly different from zero), and the stated risk aversion (the coefficient of SAFE2 is insignificantly different from zero).

Column (2) replicates the analysis we just discussed except for measuring risk as the proportion of risky assets in the investor's portfolio (RISKY), a measure of the revealed (as opposed to the stated) risk preference of the investors in our sample. Risky assets are stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and the like. According to this measure of risk preference, dentists are more risk averse than managers, since the coefficient reported in the table is negative and significant with confidence 0.90. All the other results remain essentially the same.

Column (3) of the table includes both measures of risk aversion (SAFE2 and RISKY) in the regression. As one can see, our conclusions stand. In particular, dentists are equally risk averse as managers based on what they say (the variable SAFE2 has a statistically insignificant coefficient), but they are more risk averse based on how they actually structure their portfolios (the coefficient of RISKY is negative and significant with confidence 0.90).

The last column in Table 8, column (4), drops the statistically insignificant variables of our previous specifications and adds two other possible measures of attitudes towards risk, namely: SPEC, a binary variable equal to 1 if the person in the sample uses part of his/her wealth to speculate, and equal to 0 otherwise; and VULNERABLE, a binary variable equal to 1 if the market turmoil of 2000 and 2001 has made the investor in the sample more cautious, and equal to 0 otherwise. Both variables are positive and statistically significant. In contrast, the coefficients of the remaining variables are essentially unchanged. Hence, dentists have become more cautious investors than managers recently, but at least some of them also like to engage more frequently in speculative trades. The latter finding is consistent with the introductory *Wall Street Journal* quote according to which dentists like to gamble sometimes.

5.1.2   The importance of age

We have not controlled for age in Table 8. Table 9 corrects this omission under the rationale that some of our results could be driven by age. Age is measured with the following three binary variables:

BETWEEN40-49:   equal to 1 if the person in the sample is between 40 and 49, and equal to 0 otherwise;

BETWEEN50-64:   equal to 1 if the person in the sample is between 50 and 64, and equal to 0 otherwise;

ABOVE64:   equal to 1 if the person in the sample is 65 or older, and equal to 0 otherwise.

For ease of comparison, the first column in Table 9 repeats the last column of Table 8. Column (2) then adds the binary variable ABOVE64 in the regression. As the numbers show, including this variable does not affect the sign and the significance of the regression arguments investigated so far. Our main conclusions therefore stand. The variable ABOVE64 itself has a positive coefficient which is statistically significant with confidence better than 0.99. The sample of dentists therefore has more individuals older than 65 than the sample of managers.

Column (3) allows for all three age categories: between 40 and 49, between 50 and 64, and 65 or older. Again, this inclusion does not change our conclusions so far, except for the coefficient of wealth (LNWEALTH) which ceases to be significant. As in column (2), we find that dentists in our sample are older than managers, since all three measures of age have a positive and significant coefficient.

5.1.3   Information aspects

Table 10 takes our regression analysis yet another step further and asks whether dentists differ from managers in their information-gathering activities, how they react to investment-related information, and why they invest in the first place. We begin with the question of whether dentists gather information on a more regular basis than managers do. Based on what we learned so far, it is not clear what we should expect. Some investors who feel they lack the necessary knowledge may want to close the gap by reading up on certain subjects; some others, however, may decide to avoid these topics altogether or to hire specialists to address their financial matters—as we have seen, dentists do seek financial advice more frequently than managers do.

Column (1) of the table offers the answer. The regression specification is that of column (3) of the last table we saw (Table 9) augmented by a binary variable (INFO) equal to 1 if the person in the sample informs him-/herself about financial matters on a regular basis, and equal to 0 otherwise. The estimated coefficient of this variable tells us that dentists are *less* inclined to collect information than managers are (the coefficient of INFO is negative and significant with confidence 0.99). The remaining variables maintain the coefficients and the significance we already know with the exception of the variable CONTRA, which is now statistically insignificant.

Column (2) uses the specification of column (1) and investigates whether dentists react differently from managers to capital-market events. For this purpose, we include three additional independent variables in the regression. The first two capture the regret for having sold stocks too early (REGRET1) or too late (REGRET2). The third variable measures whether the investor attributes financial losses to bad luck (BADLUCK). These variables are binary and are measured as follows: REGRET1 is equal to 1 if the person in the sample has regretted selling stocks too early, and is equal to 0 otherwise; REGRET2 is equal to 1 if the person in the sample has regretted selling stocks too late, and is equal to 0 otherwise; and BADLUCK is equal to 1 if the person in the sample attributes losses to bad luck, and is equal to 0 otherwise.

The results indicate that dentists are no different from managers in their regret about having sold stocks too early or too late (the coefficients of both REGRET1 and REGRET2 are statistically zero). However, dentists have a more pronounced tendency to ascribe losses to bad luck. One possible interpretation is that, although they think they have an insufficient understanding of financial matters, they trust the know-how of their financial advisors. Consequently, when financial markets turn and losses occur, dentists ascribe the cause to bad luck rather than to poor advice.

In column (3), we drop the variables REGRET1, and REGRET2 because of their statistically insignificant coefficients, and add three binary variables that measure possible investment targets, namely maintaining a given wealth level (MAINTAIN), increasing it (INCREASE), or putting money aside to leave inheritance (INHERITANCE). These variables are defined as follows: MAINTAIN equals 1 if the person in the sample pursues an investment strategy that maintains his/her wealth, and equals 0 otherwise; INCREASE equals 1 if the person in the sample pursues an investment strategy that increases his/her wealth, and equals 0

otherwise; INHERITANCE equals 1 if the person in the sample intends to bequeath money to heirs, and equals 0 otherwise. The results show that leaving inheritance is the only investment target that tells dentists from managers apart: the coefficient of INHERITANCE is positive and significant with confidence 0.94. There is no difference between the two professions with regard to the desire to maintain or increase wealth. All the remaining variables in the regression maintain the coefficients we have seen before, except for the variable SPEC that becomes insignificant. The latter result questions the notion that dentists, in general, are more willing to engage in speculative trades than other professions.

In the univariate analysis, we saw that dentists hold individual stocks less frequently in their portfolios than managers do. This could be interpreted as a more pronounced preference for diversification. We therefore also investigated the importance of this consideration by adding a variable in column (3) that measures the importance that the individual assigns to a diversified portfolio (high importance receives a value of 1, low importance a value of 0). As it turns out, this variable has a positive and marginally significant coefficient with confidence 0.90 (not shown). Dentists therefore seem to have a stronger preference for diversified portfolios than managers have, consistent with the notion that uninformed investors do not try to outguess the market.

In conclusion, our results indicate that, compared to managers, dentists feel less competent. This belief could be responsible for marginally more home bias, a less pronounced focus on familiar stocks, a stronger need for an investment advisor, a stronger predilection for risk diversification, and a predisposition to ascribe financial losses to bad luck. Dentists are also less keen on actually informing themselves and they are more risk averse, particularly after the market turmoil of early 2000.

5.2   Investor profiles of men and women

The above section has shown that dentists have an investor profile that differs significantly from that of managers. The purpose of this section is to explore whether, as suggested in the univariate analysis, there is also a difference between men and women in the two sub-samples. To find out, we estimate binary logistic regressions for both dentists and managers, separately, using the same variables investigated in our preceding analysis. In these regressions, the dependent variable equals one if the individual in question is female, and equals zero if he is male. Our analysis retraces

essentially the same steps we followed in our investigation before. The results are shown in Table 11. To avoid clutter, the table concentrates on the most relevant findings and reports two alternative specifications for each professional sample. The first two columns refer to the dentists in our sample, and the last two columns to the managers. To interpret the table correctly, bear in mind that any variable discussed in our preceding analysis which is not reported in the table has a coefficient that is statistically insignificant when we insert it in the regression. Moreover, the omission does not change our conclusions.

Let us discuss the findings in columns (1) and (3) first. As illustrated there, women do differ from men in some respects. Regardless whether they are dentists or managers, women are significantly less interested in financial matters (INT has a negative and significant coefficient with confidence of 0.99 in the case of dentists and 0.90 in the case of managers), they have less home bias (the coefficient of HOMEBIAS is negative with confidence 0.99 in the case of dentists and confidence 0.90 in the case of managers), they are more willing to consult their partner (the coefficient of PARTAD is positive and significant with confidence better than 0.95), and they are less willing to inform themselves directly (the coefficient of INFO is marginally negative with confidence 0.90). Contrary to what some of the literature has reported,[9] however, we find no evidence that women are more risk averse than men are, regardless whether we rely on what women say (the variable SAFE2) or what they actually do (the variable RISKY).[10] We also find no difference between women and men in their investment purposes either (the coefficients of MAINTAIN, INCREASE, and INHERITANCE are insignificant; this result is not reported in the table).

The investor profile of women, however, does not seem to be exactly the same across professions. Female dentists, in particular, feel *more* competent than their male colleagues (the coefficient of COMP is positive and significant with confidence 0.99), and they experience less regret for having sold too early (the coefficient of REGRET1

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9   See for example Hinz, McCarthy, and Turner (1996), Pålsson (1996), Bajtelsmit and VanDerhai (1997), Jianakoplos and Bernasek (1998), Sundén and Surette (1998), Bajtelsmit, Bernasek, and Jianakoplos (1999), Hariharan, Chapman, and Domian (2000), Grable 2000, Barber and Odean (2001), or Hallahan, Faff, and McKenzie (2004).

10 The experiments conducted by Schubert, Brown, Gysler, and Brachinger (1999) and Schubert, Gysler, Brown, and Brachinger (2000) suggest that women are ambiguity rather than risk averse. Compared to men, they exhibit more aversion for contexts of choice (such as investment decisions) with little or no information concerning outcome probabilities. The evidence presented here suggests, however, that women are neither more risk nor more ambiguity averse than men are.

is negative and significant with confidence of almost 0.95). Female managers do not share these characteristics. Moreover, unlike female dentists, female managers tend to engage less often in contrarian strategies (the coefficient of CONTRA is negative and statistically significant with confidence 0.95), and more often in momentum strategies (the coefficient of MOMENT is positive and marginally significant with confidence 0.90). The two columns also show that female dentists have marginally less money than their male colleagues, whereas female managers are significantly younger.

A look at the number of observations reveals a potential missing-observations problem that could affect our estimates. For example, not all respondents provide information concerning their investment strategies and preferences. This problem affects especially our dentists; their set of observations with full information is "only" 131. To find out whether missing information biases our results, we modify the regression specification and drop the variables HOMEBIAS, SOCRESP, CONTRA, and MOMENT, since these are the variables that many respondents have skipped in the questionnaire. Doing so increases the two sub-samples by about 100 observations, which in the case of dentists means an 80%-increase in sample size. The results under the new regression specification are shown in columns (2) and (4) of the table. As one can see, the results do not change, except for the variable COMP, which becomes negative and significant in the case of managers.

The bottom line of our evidence is that not only do dentists differ from managers as investors, there is also a gender difference in each profession, and the difference is in part profession-specific. Women, regardless whether they are dentists or managers, are less interested, less inclined to inform themselves, and more willing to ask for their partner's advice than men are. Moreover, contrary to popular beliefs, there is no gender difference with respect to risk aversion. However, female dentists feel, among other things, more competent than their male colleagues do; in contrast, female managers have the opposite impression.

5.3   Investor profiles by wealth

The introduction mentions that a common way of clustering investors in private banking is by wealth level. In this section, we examine whether investors do indeed have different profiles if we group them by wealth. We group investors into four different classes of wealth with the following values:

1:      if the person's wealth is below CHF 250,000;

2:      if the person's wealth is between CHF 250,000 and CHF 999,999;

3:      if the person's wealth is between CHF 1 million and CHF 5 million;

4:      if the person's wealth is greater than CHF 5 million.

The four values define the dependent variable in an ordered-logistic-regression analysis of investor groups. The purpose of that analysis is to find out whether wealthier investors have different characteristics than other investors. Once again, we follow the same analytical steps taken when investigating the investor profiles of dentists and managers. We therefore start with the same regression specification adopted in the first column of Table 8.[11]

The results are illustrated in the first column of Table 12. They indicate that, compared to investors with less money, wealthier investors tend to be more experienced (the coefficient of EXP is positive and significant with confidence 0.99); they feel more competent (the coefficient of COMP is positive and significant with confidence 0.95); they have more often an investment advisor (the coefficient of FINAD is positive and significant with confidence 0.95); they have more frequently signed an asset management mandate (the coefficient of MGMTMAND is positive and significant with confidence 0.95); and, at least on paper, they are marginally more risk averse (the coefficient of SAFE is negative and significant with confidence 0.90). They are generally also older (the coefficients of the variables that refer to age are all positive and significant with confidence 0.99).

As far as their investment preferences go, wealthier investors admit to more home bias (the coefficient of HOMEBIAS is positive and significant with confidence 0.90), they care less than other investors for firms that are socially responsible (the coefficient of SOCRESP is negative and insignificant here, but it becomes significant with confidence 0.90 in the subsequent specifications), and they have a slightly weaker inclination to follow momentum or contrarian strategies (the coefficient of MOMENT is negative and significant with confidence 0.90; that of CONTRA is also negative, and it is significant in the subsequent specifications). However, the revealed risk preference of wealthier investors, as measured by the actual composition of their portfolios, is no different from that of other investors in our sample (the coefficient of RISKY is statistically indistinguishable from zero). Moreover, the stock market

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[11]   We excluded, of course, the variable LNWEALTH.

turmoil of the early 2000s has had the same impact on the risk preference of wealthier investors as on those of other investors (the coefficient of VULNERABLE is statistically zero). Finally, wealthier investors have the same interest for financial matters as other investors do, and the same liking (or disliking) for stocks they know.

Column (2) adds our information-related variables to the regression, but none of those variables is statistically significant. Hence, wealthier investors do not inform themselves more eagerly than other investors do, they experience the same (if any) regret for having sold stocks too early or too late, and they blame bad luck as frequently for their financial losses as other investors do (the coefficients of INFO, REGRET1, REGRET2, and BADLUCK are insignificantly different from zero). The remaining results are essentially those observed in the preceding column, except for the variable MOMENT that loses its statistical significance.

In column (3) then, we drop these information-related variables and include those that define investment purpose. Perhaps not very surprisingly, the results show that wealthier investors are much more concerned about leaving inheritance than other investors are (the coefficient of INHERITANCE is positive and significant with confidence 0.99). The other motivations for investing, namely maintaining or increasing wealth, are unrelated to wealth (the coefficients of MAINTAIN and INCREASE have coefficients that are statistically nil).

When we add the variable that measures the penchant for risk diversification in column (3), we find that wealthier investors are more outspoken champions of risk diversification than other investors are. The coefficient of the variable in question is positive and significant with confidence of almost 0.95 (not reported).

The finding that SAFE2 has a significant coefficient whereas RISKY has not raises the question whether stated risk preferences (as measured by the variable SAFE2) are at all positively correlated with revealed risk preferences (as measured by the variable RISKY, the fraction of the individual portfolio invested in risky assets). If this were not the case, we would have to question the interpretation of these two variables. Table 13 therefore shows the results of a tobit regression in which we regress the variable RISKY against measures of stated risk preference. So far, the main measure of *stated* risk preference was the variable SAFE2, which is equal to 1 if the investor avoids investments that could lead to financial losses, and is equal to 0 otherwise. We add here the variable SAFE1, which is equal to 1 if the investor is mainly concerned about safety, and is equal to 0 otherwise. We use this regression to

also examine whether a portfolio management mandate affects the allocation of the investor's portfolio.

The results show that stated and revealed risk preferences are indeed tightly related: the variables SAFE1 and SAFE2 have negative and highly significant coefficients. Hence, high stated risk aversion translates into a more conservative asset allocation. Table 13, however, also reports that the coefficient of MGMTMAND is positive and significant with confidence close to 0.99. Asset managers therefore seem to choose *riskier* portfolio compositions regardless of the clients' stated risk preference. This seems to point to an agency problem between asset managers and their clients, possibly because a riskier investment policy yields higher transaction and portfolio management fees.

Since there is no space to resolve this issue here, we go back to our main task, namely that of assessing the ability of the variable wealth to discriminate among investors. The results in Table 12 suggest that it does. Wealthier investors are more experienced and feel more competent, although they also tend to seek financial advice and sign asset management mandates more often than other investors do. They are also more concerned about leaving inheritance than other investors are. However, they seem to have the same risk preferences as other investors have, at least based on what they actually do. Moreover, they share the same interest for financial matters (or lack thereof) and the same eagerness to gather information. Their preference for specific investment strategies is also slightly different from that of other investors.

5.4 Investor profiles by age

Another conceivable way to group investors is by age. We turn to that analysis here. Depending on their age, investors are put into the following groups:

1: if the person in the sample is under 30;
2: if the person in the sample is between 30 and 39;
3: if the person in the sample is between 40 and 49;
4: if the person in the sample is between 50 and 64;
5: if the person in the sample is over 65.

The index that defines the five age groups is the dependent variable in an ordered-logistic-regression analysis. The results are presented in Table 14. We add, however, an additional control variable that is not necessary when we cluster investors by profession or wealth, namely gender. This variable, denoted FEM, equals 1 if the

investor in question is female, and equals 0 if he is male. This control is necessary because females in the sample are younger than males. And since females, as we have seen, tend to have different investor profiles than men do, failure to control for gender assigns some gender-specific characteristics (such as interest or the inclination to consult the partner) to age.

Once again, we follow the same analytical steps followed when investigating the investor profiles of dentists and managers. We therefore start with the same regression specification adopted in the first column of Table 8.[12] The estimation results are reported in column (1) of the table. Compared to younger investors, older investors are not more experienced, have the same interest for financial questions, do not feel more competent, have signed as often an asset management contract, and do not rely more often on their partner's advice (the coefficients of EXP, INT, COMP, MGMTMAND, and PARTAD are insignificantly different from zero on a statistical basis). Moreover, older investors hold portfolios with about the same risk characteristics as younger people do (the coefficient of RISKY is statistically zero).

However, older investors have more often an investment advisor (the coefficient of FINAD is positive and significant with confidence of 0.90), and they are more inclined to avoid investments where they can lose money (the coefficient of SAFE2 is positive and significant with confidence 0.95).[13] In spite of this difference in risk aversion, older people are equally likely to engage in occasional speculative trades as younger people do, and feel the same way about the recent market turmoil (the coefficients of SPEC and VULNERABLE are indistinguishable from zero).

Older people are also significantly wealthier than younger people (the coefficient of LNWEALTH is positive and significant with confidence 0.99). With regard to their investment preferences, older investors care more about socially responsible firms (SOCRESP is positive and significant with confidence 0.95), and they engage less frequently in contrarian investment strategies (the coefficient of CONTRA is negative and significant with confidence 0.99). However, they have the same home bias, the same like (or dislike) for stocks they know, and they do not engage in momentum strategies more often than younger investors.

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[12] We drop, of course, the variables that measure age from the regression arguments.
[13] The literature reports mixed results with respect to the relation between age and risk tolerance. According to Pålsson (1996), for example, age is negatively correlated with risk tolerance. In contrast, Jianakoplos and Bernasek (1998) find a positive relation. Hallahan, Faff, and McKenzie (2004) report a positive relation in general—and a negative one in the case of individuals over 60.

When adding the information-related variables to the regression specification, we see from column (2) that older people are more concerned about getting information than younger investors are (the coefficient of INFO is positive and significant with confidence 0.95). This could reflect lower opportunity costs of time. Older investors also experience the same regret as younger investors for having sold stocks too early (the coefficient of REGRET1 is not significant), but they regret less than them the decision of having sold too late (the coefficient of REGRET2 is negative and significant with confidence 0.95). Older investors therefore feel less regret, possibly because they have learned from past events how to control that feeling.

In column (3), we finally add the variables that measure investment purpose. Older people put significantly less emphasis on increasing their wealth (the coefficient of INCREASE is negative and significant with confidence 0.99). This could possibly be related to the limited horizon that older people face. Other than that, they do not differ from younger investors. In particular, and somewhat surprisingly, older people are not more concerned about leaving inheritance than younger investors are (the coefficient of INHERITANCE is statistically zero). One possible reason is that planning to leave inheritance would be admitting one's mortality and change the relationship to one's relatives. The remaining variables maintain their coefficients and their significance. The exception is the variable INT, which now has a positive and significant coefficient with confidence close to 0.95: older investors are more interested in investment questions than younger investors are. This is consistent with the observation that they also gather more information.

As we did when we analyzed the preceding partitioning criteria, we examined the importance of risk diversification here, too. We therefore added the variable that measures the liking for risk diversification to the specification in column (3). The results, however, show that there is no difference between older and younger people in their preference for risk diversification (not shown).

Taken together, the results suggest that the profile of older investors differs from that of younger investors (except for revealed risk aversion). Among other things, older investors are more interested in financial matters, they seek marginally more often investment advice except that of their partner, they want to avoid investments that could lead to financial losses, and they seem to be confronted less often with the feeling of regret.

5.5 Comparison of clustering criteria

The question that remains is how professional background fares as a clustering criterion compared to the more traditional criteria of wealth and age. To answer this question, we look at some of the measures of fit reported in the preceding tables. The following table summarizes those measures for the best regression specifications reported in Tables 10 (for sorting investors by professional background), 12 (for sorting investors by wealth), and 14 (for sorting investors by age). We focus on the likelihood ratio index and the proportional reduction in error.

	Dentists vs. managers	Wealthier vs. poorer investors	Older vs. younger investors
Likelihood ratio index	31.3%	23.4%	19.85%
Proportional reduction in error	34.4%	29.8%	17.1%

As one can see, sorting investors by professional background provides a discrimination that is at least as good as that provided when clustering investors by wealth, and clearly better than that provided when clustering investors by age. For example, the likelihood ratio statistic is 31% for sorting investors by professional background, 23% for sorting them by wealth, and 20% for sorting them by age. The proportional-reduction-in-error statistic confirms this claim: it equals 34% when comparing dentists and managers, compared to 30% when distinguishing investors by wealth, and 17% when distinguishing them by age. Hence, professional background is at least as good a clustering criterion as the traditional criteria of wealth and age.

6. Conclusions

This paper examines whether, as private banking folklore has it, dentists have different investor characteristics than other groups of professionals, in particular managers. The data confirm this contention. Although they have the same trading experience and the same interest for financial matters, dentists feel less competent than managers feel, are less interested in obtaining more information, are more risk averse, and have a marginally more pronounced preference for risk diversification. Their risk aversion has increased even further as a result of the stock market declines of early 2000. Dentists have also more home bias, are less inclined to invest in stocks

they are familiar with, rely more on the advice of investment professionals, and tend to attribute losses to bad luck rather than mistakes.

In each group of professionals, we observe a significant difference between men and women, and some of the differences are profession-specific. In either profession, women are less interested in financial matters, rely more on the advice of their partners, and are less interested in obtaining more investment-related information than male colleagues are. Women, however, have the same risk aversion as men. The profession-specific differences are that women dentists feel more competent in financial matters than their male colleagues do, they have less investor home bias, and they suffer less from the regret for having sold stocks too early. In contrast, women managers feel less competent in financial matters than their male colleagues, and they engage more often in momentum and less often in contrarian strategies.

When we follow private banking tradition and classify investors in different wealth categories, we also find significant differences, but in no way more substantial than when we distinguish these investors by their profession. Wealthier investors have more trading experience, feel more competent, rely more often on the advice of an investment professional, have signed more frequently an asset management mandate, have a stronger preference for diversified portfolios, and are more concerned about leaving inheritance. Moreover, they profess a greater risk aversion although their portfolio allocation is similar to that of other investors (possibly because their portfolio managers ignore their greater risk aversion). Finally, they have more pronounced home bias, and they are less interested in socially responsible firms. There is no difference, however, in terms of their penchant for momentum or contrarian strategies.

We also group investors by age. Older investors are more interested in financial matters, rely more frequently on professional investment advice, are more willing to inform themselves, and profess a more intense risk aversion than younger investors do. At the same time, they are more inclined to invest in firms that are socially responsible, engage less frequently in contrarian strategies, and tend to experience less regret for having sold too late.

The paper therefore confirms the private-banking folklore that dentists differ from other professionals, specifically managers. There are also wealth- and age-specific differences across investors, but the profession-specific idiosyncrasies are at least as important. These characteristics would seem to be relevant for private

bankers because they enable them to better calibrate their approach to their different clients. For example, dentists do not feel very competent in financial matters and are not eager to making an effort to find out. Hence, in communicating with them, portfolio managers should keep their message simple and present solutions rather than challenges.

On a more abstract level, the results suggest patterns that could help improve our understanding of investment behavior. We reviewed prominently the traits of the different professions. But investors differ also because of gender, wealth, and age. For example, there are gender differences in investor behavior, yet not with respect to risk preferences but rather in terms of interest, willingness to obtain additional information, and disposition to seek the partner's advice. Similarly, wealthier individuals' preference for the stocks of socially responsible firms is weaker than that of individuals with less money. And, just to make another example, older investors seek more actively information about financial matters and care more about social responsibility than younger investors do. They also have less intense feelings of regret for having sold too late.

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Table 1

Experience, interest, and perceived competence in investment matters by profession

The numbers in parentheses refer to the total sample of responding dentists and managers, respectively. The sample year is 2003.

	Percentage of dentists who agree	*Percentage of managers who agree*	*Chi-Square statistic for difference (p-value)*
I have invested money on the stock exchange in the past (EXP=1)	58.7% (N=317)	82.9% (N=614)	64.829 (0.000)
I am deeply interested in topics related to financial investment (INT=1)	46.2% (N=301)	67.7% (N=610)	39.110 (0.000)
I feel competent in personal finance matters (COMP=1)	16.0% (N=300)	58.3% (N=605)	145.746 (0.000)

Table 2

Risk preferences

The numbers in parentheses refer to the total sample of responding dentists and managers, respectively. The sample year is 2003.

	Percentage of dentists who agree	*Percentage of managers who agree*	*Chi-Square statistic for difference (p-value)*
In investing money, I am mainly concerned about safety, even if that means earning lower returns (SAFE1=1)	73.6% (N=303)	57.9% (N=605)	21.500 (0.000)
I avoid investments that could lead to financial losses (SAFE2=1)	69.3% (N=300)	49.6% (N=607)	31.786 (0.000)
After a financial loss, I invest my money in a safer way for a while (LOSS=1)	61.0% (N=200)	52.2% (N=538)	4.523 (0.033)
I have become more careful after the recent market developments (VULNERABLE=1)	81.0% (N=210)	72.4% (N=550)	5.938 (0.015)

Figure 1

Fraction of total wealth invested in stocks by the two groups of professionals

Table 3

Preferences in stock selection

The numbers in parentheses refer to the total sample of responding dentists and managers, respectively. The sample year is 2003.

	Percentage of dentists who agree	*Percentage of managers who agree*	*Chi-Square statistic for difference (p-value)*
I prefer to buy stocks of Swiss firms (HOMEBIAS=1)	55.9% (N=213)	49.7% (N=553)	2.321 (0.128)
I invest in stocks of firms that I know (STCKSKNOWN=1)	41.0% (N=205)	45.0% (N=553)	0.997 (0.318)
I invest only in stocks of firms that are socially responsible (SOCIALRESP=1)	40.4% (N=203)	29.2% (N=548)	8.503 (0.004)

Table 4

Investment strategy

The numbers in parentheses refer to the total sample of responding dentists and managers, respectively. The sample year is 2003.

	Percentage of dentists who agree	*Percentage of managers who agree*	*Chi-Square statistic for difference (p-value)*
Stocks that fell recently in price are especially interesting investments (CONTRA=1)	25.5% (N=184)	44.0% (N=530)	19.439 (0.000)
Stocks that rose recently in price are especially interesting investments (MOMENT=1)	14.4% (N=181)	9.1% (N=528)	4.010 (0.045)

Table 5

Investment advice and asset management mandates
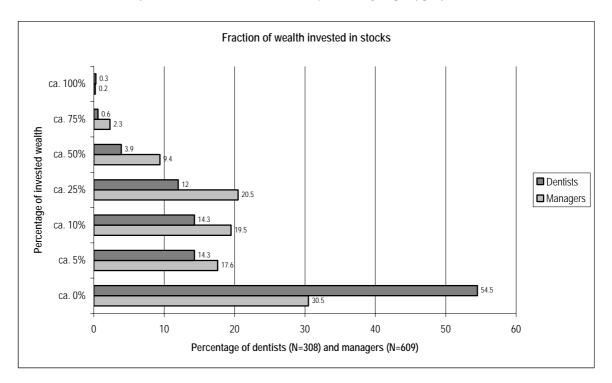
The numbers in parentheses refer to the total sample of responding dentists and managers, respectively. The sample year is 2003.

	Percentage of dentists who agree	*Percentage of managers who agree*	*Chi-Square statistic for difference (p-value)*
I rely on a financial advisor for my investment decisions (FINAD=1)	60.6% (N=226)	28.0% (N=550)	72.720 (0.000)
I have signed an asset management mandate (MGMTMAND=1)	29.1% (N=211)	13.6% (N=551)	12.000 (0.001)
I rely on investment tips of my colleagues (COLLEAGUES=1)	16.5% (N=297)	13.9% (N=604)	1.062 (0.303)
My investment decisions are based on the advice of my partner (PARTAD=1)	33.0% (N=291)	18.3% (N=601)	23.812 (0.000)

Table 6

Dentists' experience, interest, and perceived competence in investment matters by gender

The numbers in parentheses refer to the total sample of responding dentists. The sample year is 2003.

	Percentage of male dentists who agree	*Percentage of female dentists who agree*	*Chi-Square statistic for difference (p-value)*
I have invested money on the stock exchange in the past (N=317) (EXP=1)	35.4%	23.3%	17.088 (0.000)
I am deeply interested in topics related to financial investment (N=301) (INT=1)	30.9%	15.3%	23.522 (0.000)
I feel competent in personal finance matters (N=300) (COMP=1)	9.7%	6.3%	2.028 (0.154)

Table 7

Managers' experience, interest, and perceived competence in investment matters by gender

The numbers in parentheses refer to the total sample of responding managers. The sample year is 2003.

	Percentage of male managers who agree	*Percentage of female managers who agree*	*Chi-Square statistic for difference (p-value)*
I have invested money on the stock exchange in the past (N=614) (EXP=1)	45.9%	37.0%	15.546 (0.000)
I am deeply interested in topics related to financial investment (N=610) (INT=1)	41.0%	26.7%	40.501 (0.000)
I feel competent in personal finance matters (N=605) (COMP=1)	36.3%	22.0%	39.233 (0.000)

Table 8

Binary logistic regression to distinguish between dentists and managers
Multivariate version of the descriptive tables

The table examines the ability of a number of variables to discriminate between dentists and managers. The analysis is based on a 2003 survey and is performed with a logistic regression. Each column reports the estimated regression coefficients for one particular specification and (in parentheses) the z-value for a test of difference from zero and the associated p-value (two-sided test). The symbols *, **, and *** indicate statistical significance with confidence 0.90, 0.95, and 0.99, respectively. The dependent variable is DENT, a binary variable equal to 1 if the person in the sample is a dentist, and equal to 0 if the person is a manager instead.

Independent variables	(1)	(2)	(3)	(4)
EXP	–0.543 (0.117)	–0.495 (0.145)	–0.449 (0.202)	
INT	0.095 (0.718)	0.096 (0.710)	0.117 (0.657)	
COMP	–1.803*** (0.000)	–1.752*** (0.000)	–1.756*** (0.000)	–1.812*** (0.000)
HOMEBIAS	0.407* (0.082)	0.458** (0.048)	0.379 (0.109)	0.360 (0.116)
STCKSKNOWN	–0.387 (0.103)	–0.367 (0.117)	–0.372 (0.118)	–0.397* (0.085)
SOCRESP	0.314 (0.189)	0.264 (0.265)	0.291 (0.225)	
CONTRA	–0.765*** (0.004)	–0.767*** (0.004)	–0.731*** (0.006)	–0.729*** (0.004)
MOMENT	0.563 (0.111)	0.536 (0.129)	0.562 (0.113)	
FINAD	0.789*** (0.007)	0.865*** (0.003)	0.833*** (0.005)	0.961*** (0.001)
PARTAD	–0.341 (0.142)	–0.326 (0.157)	–0.338 (0.146)	
MGMTMAND	–0.044 (0.882)	0.060 (0.837)	0.011 (0.972)	
SAFE2	0.193 (0.427)		0.145 (0.555)	
RISKY		–0.919* (0.077)	–0.985* (0.065)	–1.050** (0.040)
SPEC				0.593** (0.050)
VULNERABLE				0.701*** (0.012)
LNWEALTH	0.506*** (0.000)	0.463*** (0.000)	0.493*** (0.000)	0.493*** (0.000)
Intercept	–7.241*** (0.000)	–6.451*** (0.000)	–6.930*** (0.000)	–7.762*** (0.000)

# observations	611	615	610	612
Log likelihood	–259.21	–261.64	–257.38	–261.69
Likelihood ratio test (p-value)	141.72*** (0.000)	143.76*** (0.000)	144.85*** (0.000)	151.41
Likelihood ratio index	21.5%	21.6%	22.0%	22.4%
Percent correctly predicted	80.9%	80.5%	81.0%	80.2%
Proportional reduction in error	17.0%	16.1%	17.7%	17.7%

Variable definitions

EXP	Binary variable equal to 1 if the person in the sample has traded on the stock exchange in the past, and equal to 0 otherwise;
INT	Binary variable equal to 1 if the person in the sample is deeply interested in topics related to financial investment, and equal to 0 otherwise;
COMP	Binary variable equal to 1 if the person in the sample feels competent in personal finance matters, and equal to 0 otherwise;
HOMEBIAS	Binary variable equal to 1 if the person in the sample has a preference for securities of his/her country, and equal to 0 otherwise;
STCKSKNOWN	Binary variable equal to 1 if the person in the sample has a preference for stocks he/she knows, and equal to 0 otherwise;
SOCRESP	Binary variable equal to 1 if the person in the sample invests only in stocks of firms that are socially responsible, and equal to 0 otherwise;
CONTRA	Binary variable equal to 1 if the person in the sample finds stocks that fell recently in price especially interesting, and equal to 0 otherwise;
MOMENT	Binary variable equal to 1 if the person in the sample finds stocks that rose recently in price especially interesting, and equal to 0 otherwise;
FINAD	Binary variable equal to 1 if the person in the sample relies on a financial advisor for investment decisions, and equal to 0 otherwise;
PARTAD	Binary variable equal to 1 if the person in the sample relies on the partner's advice for investment decisions, and equal to 0 otherwise;
MGMTMAND	Binary variable equal to 1 if the person in the sample has signed an asset management mandate, and equal to 0 otherwise;
SAFE2	Binary variable equal to 1 if the person in the sample avoids investments that could lead to financial losses, and equal to 0 otherwise;
RISKY	Percentage of total wealth invested in risky assets; risky assets are defined as stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and others; wealth is defined including real estate;
SPEC	Binary variable equal to 1 if the person in the sample uses part of his/her wealth to speculate, and equal to 0 otherwise;
VULNERABLE	Binary variable equal to 1 if the market turmoil of 2000-2002 has made the person in the sample more cautious, and equal to 0 otherwise;
LNWEALTH	Natural logarithm of medium wealth as indicated in the questionnaire, including real estate.

Table 9

Binary logistic regression to distinguish between dentists and managers
Extended analysis: the importance of age

The table examines the ability of a number of variables to discriminate between dentists and managers. The analysis is based on a 2003 survey and is performed with a logistic regression. Each column reports the estimated regression coefficients for one particular specification and (in parentheses) the z-value for a test of difference from zero and the associated p-value (two-sided test). The symbols *, **, and *** indicate statistical significance with confidence 0.90, 0.95, and 0.99, respectively. The dependent variable is DENT, a binary variable equal to 1 if the person in the sample is a dentist, and equal to 0 if the person is a manager instead.

Independent variables	(1)	(2)	(3)
COMP	−1.812***	−1.833***	−1.902***
	(0.000)	(0.000)	(0.000)
CONTRA	−0.729***	−0.672***	−0.558**
	(0.004)	(0.008)	(0.035)
HOMEBIAS	0.360	0.316	0.350
	(0.116)	(0.173)	(0.147)
STCKSKNOWN	−0.397*	−0.398*	−0.497**
	(0.085)	(0.087)	(0.041)
FINAD	0.961***	0.870***	0.949***
	(0.001)	(0.002)	(0.001)
RISKY	−1.050**	−1.187**	−1.041
	(0.040)	(0.024)	(0.056)
SPEC	0.593**	0.594*	0.692**
	(0.050)	(0.052)	(0.032)
VULNERABLE	0.701**	0.777***	0.777***
	(0.012)	(0.007)	(0.009)
LNWEALTH	0.493***	0.422***	0.105
	(0.000)	(0.000)	(0.365)
BETWEEN40-49			0.761**
			(0.018)
BETWEEN50-64			1.811***
			(0.000)
ABOVE64		1.409***	2.530***
		(0.001)	(0.000)
Intercept	−7.762***	−6.871***	−3.519**
	(0.000)	(0.000)	(0.016)
# observations	612	612	612
Log likelihood	−261.69	−256.22	−241.74
Likelihood ratio test (p-value)	151.41***	162.36***	191.33***
	(0.000)	(0.000)	(0.000)
Likelihood ratio index	22.4%	24.1%	28.4%
Percent correctly predicted	80.2%	80.9%	83.7%
Proportional reduction in error	17.7%	20.4%	32.0%

Variable definitions	
COMP	Binary variable equal to 1 if the person in the sample feels competent in personal finance matters, and equal to 0 otherwise;
CONTRA	Binary variable equal to 1 if the person in the sample finds stocks that fell recently in price especially interesting, and equal to 0 otherwise;
HOMEBIAS	Binary variable equal to 1 if the person in the sample has a preference for securities of his/her country, and equal to 0 otherwise;
STCKSKNOWN	Binary variable equal to 1 if the person in the sample has a preference for stocks he/she knows, and equal to 0 otherwise;
FINAD	Binary variable equal to 1 if the person in the sample relies on a financial advisor for investment decisions, and equal to 0 otherwise;
RISKY	Percentage of total wealth invested in risky assets; risky assets are defined as stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and others; wealth is defined including real estate;
SPEC	Binary variable equal to 1 if the person in the sample uses part of his/her wealth to speculate, and equal to 0 otherwise;
VULNERABLE	Binary variable equal to 1 if the market turmoil of 2000-2002 has made the person in the sample more cautious, and equal to 0 otherwise;
LNWEALTH	Natural logarithm of medium wealth as indicated in the questionnaire, including real estate;
BETWEEN40-49	Binary variable equal to 1 if the person in the sample is between 40 and 49, and equal to 0 otherwise;
BETWEEN50-64	Binary variable equal to 1 if the person in the sample is between 50 and 64, and equal to 0 otherwise;
ABOVE64	Binary variable equal to 1 if the person in the sample is 65 or older, and equal to 0 otherwise.

Table 10

Binary logistic regression to distinguish between dentists and managers
Extended analysis: the importance of information and the purpose for investing

The table examines the ability of a number of variables to discriminate between dentists and managers. The analysis is based on a 2003 survey and is performed with a logistic regression. The analysis is based on a 2003 survey and is performed with a logistic regression. Each column reports the estimated regression coefficients for one particular specification and (in parentheses) the z-value for a test of difference from zero and the associated p-value (two-sided test). The symbols *, **, and *** indicate statistical significance with confidence 0.90, 0.95, and 0.99, respectively. The dependent variable is DENT, a binary variable equal to 1 if the person in the sample is a dentist, and equal to 0 if the person is a manager instead.

Independent variables	(1)	(2)	(3)
COMP	–1.538***	–1.438***	–1.240***
	(0.000)	(0.000)	(0.000)
CONTRA	–0.409	–0.375	–0.428
	(0.130)	(0.217)	(0.152)
HOMEBIAS	0.349	0.394	0.486*
	(0.155)	(0.143)	(0.070)
STCKSKNOWN	–0.463*	–0.468*	–0.463*
	(0.061)	(0.087)	(0.084)
FINAD	0.872***	0.610*	0.531*
	(0.003)	(0.059)	(0.099)
INFO	–1.046***	–0.944***	–1.103***
	(0.000)	(0.003)	(0.000)
REGRET1		–0.197	
		(0.502)	
REGRET2		0.338	
		(0.265)	
BADLUCK		0.731**	0.685**
		(0.012)	(0.021)
RISKY	–1.027*	–1.304**	–1.136*
	(0.063)	(0.035)	(0.065)
SPEC	0.721**	0.666*	0.552
	(0.029)	(0.063)	(0.128)
VULNERABLE	0.817***	0.516	0.615*
	(0.007)	(0.117)	(0.061)
MAINTAIN			–0.001
			(0.997)
INCREASE			–0.016
			(0.964)
INHERITANCE			0.638**
			(0.048)
LNWEALTH	0.135	0.224*	0.113
	(0.253)	(0.089)	(0.389)
BETWEEN40-49	1.016***	0.892**	0.914**
	(0.002)	(0.019)	(0.016)
BETWEEN50-64	2.015***	2.026***	2.098***
	(0.000)	(0.000)	(0.000)
ABOVE64	2.921***	2.899***	2.873***
	(0.000)	(0.000)	(0.000)
Intercept	–3.687**	–4.852***	–3.418**
	(0.014)	(0.004)	(0.044)

# observations	610	543	544
Log likelihood	–233.43	–198.03	–201.54
Likelihood ratio test (p-value)	206.83*** (0.000)	187.44*** (0.000)	183.36*** (0.000)
Likelihood ratio index	30.7%	32.1%	31.3%
Percent correctly predicted	83.0%	85.1%	84.9%
Proportional reduction in error	29.3%	34.7%	34.4%

Variable definitions

COMP	Binary variable equal to 1 if the person in the sample feels competent in personal finance matters, and equal to 0 otherwise;
CONTRA	Binary variable equal to 1 if the person in the sample finds stocks that fell recently in price especially interesting, and equal to 0 otherwise;
HOMEBIAS	Binary variable equal to 1 if the person in the sample has a preference for securities of his/her country, and equal to 0 otherwise;
STCKSKNOWN	Binary variable equal to 1 if the person in the sample has a preference for stocks he/she knows, and equal to 0 otherwise;
FINAD	Binary variable equal to 1 if the person in the sample relies on a financial advisor for investment decisions, and equal to 0 otherwise;
INFO	Binary variable equal to 1 if the person in the sample informs him-/herself about issues related to money and capital markets on a regular basis, and equal to 0 otherwise;
REGRET1	Binary variable equal to 1 if the person in the sample has regretted selling stocks too early, and equal to 0 otherwise;
REGRET2	Binary variable equal to 1 if the person in the sample has regretted selling stocks too late, and equal to 0 otherwise;
BADLUCK	Binary variable equal to 1 if the person in the sample attributes losses to bad luck, and equal to 0 otherwise;
RISKY	Percentage of total wealth invested in risky assets; risky assets are defined as stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and others; wealth is defined including real estate;
SPEC	Binary variable equal to 1 if the person in the sample uses part of his/her wealth to speculate, and equal to 0 otherwise;
VULNERABLE	Binary variable equal to 1 if the market turmoil of 2000-2002 has made the person in the sample more cautious, and equal to 0 otherwise;
MAINTAIN	Binary variable equal to 1 if the person in the sample pursues an investment strategy that maintains his wealth, and equal to 0 otherwise;
INCREASE	Binary variable equal to 1 if the person in the sample pursues an investment strategy that increases his wealth, and equal to 0 otherwise;
INHERITANCE	Binary variable equal to 1 if the person in the sample intends to bequeath money to heirs, and equal to 0 otherwise;
LNWEALTH	Natural logarithm of medium wealth as indicated in the questionnaire, including real estate;
BETWEEN40-49	Binary variable equal to 1 if the person in the sample is between 40 and 49, and equal to 0 otherwise;
BETWEEN50-64	Binary variable equal to 1 if the person in the sample is between 50 and 64, and equal to 0 otherwise;
ABOVE64	Binary variable equal to 1 if the person in the sample is 65 or older, and equal to 0 otherwise.

Table 11

Binary logistic regression to distinguish between females and males in either sample of dentists and managers

The table examines the ability of a number of variables to classify the individuals in the sample as female as opposed to male dentists. The analysis is based on a 2003 survey and is performed with a logistic regression. Each column reports the estimated regression coefficients for one particular specification and (in parentheses) the z-value for a test of difference from zero and the associated p-value (two-sided test). The symbols *, **, and *** indicate statistical significance with confidence 0.90, 0.95, and 0.99, respectively. The dependent variable is FEM, a binary variable equal to 1 if the person in the sample is a woman, and equal to 0 otherwise.

Independent variables	Dentists (1)	Dentists (2)	Managers (3)	Managers (4)
INT	−1.609*** (0.004)	−1.195*** (0.001)	−0.580* (0.055)	−0.668*** (0.008)
COMP	2.083*** (0.003)	1.102** (0.022)	−0.114 (0.675)	−0.449* (0.061)
HOMEBIAS	−1.502*** (0.003)		−0.373 (0.101)	
SOCRESP	0.526 (0.282)		0.300 (0.238)	
CONTRA	0.107 (0.864)		−0.524** (0.027)	
MOMENT	0.514 (0.505)		0.741* (0.063)	
FINAD	−0.073 (0.910)	0.051 (0.878)	0.010 (0.966)	0.068 (0.737)
PARTAD	1.019** (0.033)	0.922*** (0.003)	1.185*** (0.000)	1.024*** (0.000)
INFO	−0.908 (0.105)	−0.758* (0.072)	−0.529* (0.063)	−0.346 (0.166)
REGRET1	−1.016* (0.058)		−0.049 (0.832)	
SAFE2	0.039 (0.938)	0.130 (0.707)	0.195 (0.435)	0.062 (0.778)
RISKY	0.673 (0.580)	1.031 (0.198)	0.232 (0.615)	−0.003 (0.994)
LNWEALTH	−0.386 (0.123)	−0.277* (0.077)	−0.064 (0.560)	−0.061 (0.532)
BETWEEN40-49	−0.590 (0.413)	−0.175 (0.683)	−0.825*** (0.004)	−0.924*** (0.000)
BETWEEN50-64	0.234 (0.762)	−0.305 (0.500)	−1.340*** (0.000)	−1.528*** (0.000)
ABOVE64	0.307 (0.750)	−1.130* (0.083)	−2.752*** (0.013)	−1.949*** (0.002)
Intercept	5.828* (0.076)	3.589* (0.061)	1.605 (0.254)	1.668 (0.174)

# observations	131	237	450	555
Log likelihood	–63.299	–136.418	–249.45	–314.94
Likelihood ratio test (p-value)	46.60*** (0.000)	55.37*** (0.000)	121.00 (0.000)	138.99*** (0.000)
Likelihood ratio index	26.9%	16.9%	19.5%	18.1%
Percent correctly predicted	71.8%	71.7%	72.9%	70.3%
Proportional reduction in error	24.5%	41.2%	40.2%	38.7%

Variable definitions

INT	Binary variable equal to 1 if the person in the sample is deeply interested in topics related to financial investment, and equal to 0 otherwise;
COMP	Binary variable equal to 1 if the person in the sample feels competent in personal finance matters, and equal to 0 otherwise;
HOMEBIAS	Binary variable equal to 1 if the person in the sample has a preference for securities of his/her country, and equal to 0 otherwise;
SOCRESP	Binary variable equal to 1 if the person in the sample invests only in stocks of firms that are socially responsible, and equal to 0 otherwise;
CONTRA	Binary variable equal to 1 if the person in the sample finds stocks that fell recently in price especially interesting, and equal to 0 otherwise;
MOMENT	Binary variable equal to 1 if the person in the sample finds stocks that rose recently in price especially interesting, and equal to 0 otherwise;
FINAD	Binary variable equal to 1 if the person in the sample relies on a financial advisor for investment decisions, and equal to 0 otherwise;
PARTAD	Binary variable equal to 1 if the person in the sample relies on the partner's advice for investment decisions, and equal to 0 otherwise;
INFO	Binary variable equal to 1 if the person in the sample informs him-/herself about issues related to money and capital markets on a regular basis, and equal to 0 otherwise;
REGRET1	Binary variable equal to 1 if the person in the sample has regretted selling stocks too early, and equal to 0 otherwise;
SAFE2	Binary variable equal to 1 if the person in the sample avoids investments that could lead to financial losses, and equal to 0 otherwise;
RISKY	Percentage of total wealth invested in risky assets; risky assets are defined as stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and others; wealth is defined including real estate;
LNWEALTH	Natural logarithm of medium wealth as indicated in the questionnaire, including real estate;
BETWEEN40-49	Binary variable equal to 1 if the person in the sample is between 40 and 49, and equal to 0 otherwise;
BETWEEN50-64	Binary variable equal to 1 if the person in the sample is between 50 and 64, and equal to 0 otherwise;
ABOVE64	Binary variable equal to 1 if the person in the sample is 65 or older, and equal to 0 otherwise;

Table 12

Ordered logistic regression to distinguish investors by wealth

The table examines the ability of a number of variables to classify the individuals in the sample by wealth. The analysis is based on a 2003 survey and is performed with an ordered logistic regression. Each column reports the estimated regression coefficients for one particular specification and (in parentheses) the z-value for a test of difference from zero and the associated p-value (two-sided test). The symbols *, **, and *** indicate statistical significance with confidence 0.90, 0.95, and 0.99, respectively. The dependent variable WEALTH takes the following values:

1:    if the person's wealth is below CHF 250,000;
2:    if the person's wealth is between CHF 250,000 and CHF 999,999;
3:    if the person's wealth is between CHF 1 million and CHF 5 million;
4:    if the person's wealth is greater than CHF 5 million.

Independent variables	(1)	(2)	(3)
EXP	1.559*** (0.000)	1.324*** (0.003)	1.416*** (0.000)
INT	0.206 (0.357)	–0.111 (0.651)	0.131 (0.556)
COMP	0.483** (0.016)	0.396 (0.065)	0.499** (0.014)
HOMEBIAS	0.338* (0.065)	0.436** (0.019)	0.315* (0.088)
STCKSKNOWN	–0.008 (0.964)	–0.062 (0.742)	0.073 (0.688)
SOCRESP	–0.277 (0.160)	–0.364* (0.071)	–0.327* (0.099)
CONTRA	–0.274 (0.151)	–0.325* (0.098)	–0.311 (0.106)
MOMENT	–0.582* (0.061)	–0.466 (0.134)	–0.432 (0.166)
FINAD	0.439** (0.028)	0.347* (0.091)	0.373* (0.066)
PARTAD	–0.024 (0.893)	0.039 (0.834)	–0.076 (0.673)
MGMTMAND	0.639** (0.013)	0.784*** (0.003)	0.596** (0.023)
INFO		0.284 (0.215)	
REGRET1		0.228 (0.254)	
REGRET2		–0.143 (0.491)	
BADLUCK		–0.270 (0.231)	
SAFE2	–0.321* (0.096)	–0.327*** (0.095)	–0.435** (0.025)
RISKY	–0.312 (0.414)	–0.463 (0.233)	–0.466 (0.233)
SPEC	–0.012 (0.955)		

VULNERABLE	0.057 (0.775)		
MAINTAIN			−0.022 (0.917)
INCREASE			−0.090 (0.731)
INHERITANCE			1.017*** (0.000)
BETWEEN40-49	1.779*** (0.000)	1.852*** (0.000)	1.744*** (0.000)
BETWEEN50-64	2.751*** (0.000)	2.634*** (0.000)	2.833*** (0.000)
ABOVE64	3.415*** (0.000)	3.294*** (0.000)	3.352*** (0.000)
# observations	577	540	576
Log likelihood	−508.50	−486.81	−491.89
Likelihood ratio test (p-value)	278.42*** (0.000)	255.47*** (0.000)	300.29*** (0.000)
Likelihood ratio index	21.5%	20.8%	23.4%
Percent correctly predicted	58.1%	57.0%	58.7%
Proportional reduction in error	29.7%	29.3%	29.8%

Variable definitions

EXP	Binary variable equal to 1 if the person in the sample has traded on the stock exchange in the past, and equal to 0 otherwise;
INT	Binary variable equal to 1 if the person in the sample is deeply interested in topics related to financial investment, and equal to 0 otherwise;
COMP	Binary variable equal to 1 if the person in the sample feels competent in personal finance matters, and equal to 0 otherwise;
HOMEBIAS	Binary variable equal to 1 if the person in the sample has a preference for securities of his/her country, and equal to 0 otherwise;
STCKSKNOWN	Binary variable equal to 1 if the person in the sample has a preference for stocks he/she knows, and equal to 0 otherwise;
SOCRESP	Binary variable equal to 1 if the person in the sample invests only in stocks of firms that are socially responsible, and equal to 0 otherwise;
CONTRA	Binary variable equal to 1 if the person in the sample finds stocks that fell recently in price especially interesting, and equal to 0 otherwise;
MOMENT	Binary variable equal to 1 if the person in the sample finds stocks that rose recently in price especially interesting, and equal to 0 otherwise;
FINAD	Binary variable equal to 1 if the person in the sample relies on a financial advisor for investment decisions, and equal to 0 otherwise;
PARTAD	Binary variable equal to 1 if the person in the sample relies on the partner's advice for investment decisions, and equal to 0 otherwise;
MGMTMAND	Binary variable equal to 1 if the person in the sample has signed an asset management mandate, and equal to 0 otherwise;
INFO	Binary variable equal to 1 if the person in the sample informs him-/herself about issues related to money and capital markets on a regular basis, and equal to 0 otherwise;
REGRET1	Binary variable equal to 1 if the person in the sample has regretted selling stocks too early, and equal to 0 otherwise;

REGRET2	Binary variable equal to 1 if the person in the sample has regretted selling stocks too late, and equal to 0 otherwise;
BADLUCK	Binary variable equal to 1 if the person in the sample attributes losses to bad luck, and equal to 0 otherwise;
SAFE2	Binary variable equal to 1 if the person in the sample avoids investments that could lead to financial losses, and equal to 0 otherwise;
RISKY	Percentage of total wealth invested in risky assets; risky assets are defined as stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and others; wealth is defined including real estate;
SPEC	Binary variable equal to 1 if the person in the sample uses part of his/her wealth to speculate, and equal to 0 otherwise;
VULNERABLE	Binary variable equal to 1 if the market turmoil of 2000-2002 has made the person in the sample more cautious, and equal to 0 otherwise;
MAINTAIN	Binary variable equal to 1 if the person in the sample pursues an investment strategy that maintains his wealth, and equal to 0 otherwise;
INCREASE	Binary variable equal to 1 if the person in the sample pursues an investment strategy that increases his wealth, and equal to 0 otherwise;
INHERITANCE	Binary variable equal to 1 if the person in the sample intends to bequeath money to heirs, and equal to 0 otherwise;
BETWEEN40-49	Binary variable equal to 1 if the person in the sample is between 40 and 49, and equal to 0 otherwise;
BETWEEN50-64	Binary variable equal to 1 if the person in the sample is between 50 and 64, and equal to 0 otherwise;
ABOVE64	Binary variable equal to 1 if the person in the sample is 65 or older, and equal to 0 otherwise.

Table 13

Relation between revealed and stated risk preferences

The table examines the relation between revealed risk preferences (as measured by portfolio composition) and stated risk preferences. The analysis is based on a 2003 survey and is performed with a tobit regression. The dependent variable is the fraction of the individual's wealth invested in risky assets; risky assets are stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and others; wealth is defined including real estate. Each column reports the estimated regression coefficients for one particular specification and (in parentheses) the z-value for a test of difference from zero and the associated p-value (two-sided test). The symbols *, **, and *** indicate statistical significance with confidence 0.90, 0.95, and 0.99, respectively.

Independent variables	(1)
MGMTMAND	0.064**
	(0.015)
SAFE1	−0.115***
	(0.000)
SAFE2	−0.085***
	(0.000)
Intercept	0.392***
	(0.000)
# observations	739
Log likelihood	−123.36
Likelihood ratio test (p-value)	77.09*** (0.000)
Likelihood ratio index	23.8%

Variable definitions	
MGMTMAND	Binary variable equal to 1 if the person in the sample has signed an asset management mandate, and equal to 0 otherwise;
SAFE1	Binary variable equal to 1 if the person in the sample is mainly concerned about safety, and equal to 0 otherwise;
SAFE2	Binary variable equal to 1 if the person in the sample avoids investments that could lead to financial losses, and equal to 0 otherwise.

Table 14

Ordered logistic regression to distinguish investors by age

The table examines the ability of a number of variables to classify individuals by age. The analysis is based on a 2003 survey and is performed with an ordered logistic regression. Each column reports the estimated regression coefficients for one particular specification and (in parentheses) the z-value for a test of difference from zero and the associated p-value (two-sided test). The symbols *, **, and *** indicate statistical significance with confidence 0.90, 0.95, and 0.99, respectively. The dependent variable AGE takes the following values:

1: if the person in the sample is under 30;
2: if the person in the sample is between 30 and 39;
3: if the person in the sample is between 40 and 49;
4: if the person in the sample is between 50 and 64;
5: if the person in the sample is over 65.

Independent variables	(1)	(2)	(3)
EXP	0.298 (0.353)		
INT	0.328 (0.133)	0.362 (0.124)	0.469* (0.053)
COMP	−0.104 (0.592)	−0.313 (0.121)	−0.240 (0.253)
HOMEBIAS	−0.046 (0.794)		
STCKSKNOWN	0.088 (0.615)		
SOCRESP	0.435** (0.021)	0.527*** (0.005)	0.571*** (0.003)
CONTRA	−0.572*** (0.002)	−0.528*** (0.004)	−0.545*** (0.004)
MOMENT	−0.246 (0.402)		
FINAD	0.330* (0.082)	0.381** (0.040)	0.351* (0.069)
PARTAD	−0.111 (0.537)		
MGMTMAND	−0.061 (0.809)		
INFO		0.458** (0.036)	0.426* (0.060)
REGRET1		0.211 (0.257)	0.225 (0.245)
REGRET2		−0.381* (0.051)	−0.364* (0.073)
BADLUCK		0.288 (0.174)	0.217 (0.327)
SAFE2	0.456** (0.014)	0.501*** (0.005)	0.459** (0.014)

RISKY	−0.325 (0.370)		
SPEC	0.128 (0.546)		
VULNERABLE	0.092 (0.635)		
MAINTAIN			−0.243 (0.242)
INCREASE			−0.611** (0.019)
INHERITANCE			0.127 (0.584)
LNWEALTH	0.968*** (0.000)	0.996*** (0.000)	0.989*** (0.000)
FEM	−1.064*** (0.000)	−1.001*** (0.000)	−0.891*** (0.000)
# observations	576	560	525
Log likelihood	−630.22	−622.03	−577.95
Likelihood ratio χ^2 (p-value)	294.07*** (0.000)	297.96*** (0.000)	286.31*** (0.000)
Likelihood ratio index	18.92%	19.32%	19.85%
Percent correctly predicted	54.0%	54.1%	53.9%
Proportional reduction in error	15.3%	17.9%	17.1%

Variable definitions

EXP	Binary variable equal to 1 if the person in the sample has traded on the stock exchange in the past, and equal to 0 otherwise;
INT	Binary variable equal to 1 if the person in the sample is deeply interested in topics related to financial investment, and equal to 0 otherwise;
COMP	Binary variable equal to 1 if the person in the sample feels competent in personal finance matters, and equal to 0 otherwise;
HOMEBIAS	Binary variable equal to 1 if the person in the sample has a preference for securities of his/her country, and equal to 0 otherwise;
STCKSKNOWN	Binary variable equal to 1 if the person in the sample has a preference for stocks he/she knows, and equal to 0 otherwise;
SOCRESP	Binary variable equal to 1 if the person in the sample invests only in stocks of firms that are socially responsible, and equal to 0 otherwise;
CONTRA	Binary variable equal to 1 if the person in the sample finds stocks that fell recently in price especially interesting, and equal to 0 otherwise;
MOMENT	Binary variable equal to 1 if the person in the sample finds stocks that rose recently in price especially interesting, and equal to 0 otherwise;
FINAD	Binary variable equal to 1 if the person in the sample relies on a financial advisor for investment decisions, and equal to 0 otherwise;
PARTAD	Binary variable equal to 1 if the person in the sample relies on the partner's advice for investment decisions, and equal to 0 otherwise;
MGMTMAND	Binary variable equal to 1 if the person in the sample has signed an asset management mandate, and equal to 0 otherwise;

INFO	Binary variable equal to 1 if the person in the sample informs him-/herself about issues related to money and capital markets on a regular basis, and equal to 0 otherwise;
REGRET1	Binary variable equal to 1 if the person in the sample has regretted selling stocks too early, and equal to 0 otherwise;
REGRET2	Binary variable equal to 1 if the person in the sample has regretted selling stocks too late, and equal to 0 otherwise;
BADLUCK	Binary variable equal to 1 if the person in the sample attributes losses to bad luck, and equal to 0 otherwise;
SAFE2	Binary variable equal to 1 if the person in the sample avoids investments that could lead to financial losses, and equal to 0 otherwise;
RISKY	Percentage of total wealth invested in risky assets; risky assets are defined as stocks, stock funds, mixed funds, index certificates, options, futures, structured products, and others; wealth is defined including real estate;
SPEC	Binary variable equal to 1 if the person in the sample uses part of his/her wealth to speculate, and equal to 0 otherwise;
VULNERABLE	Binary variable equal to 1 if the market turmoil of 2000-2002 has made the person in the sample more cautious, and equal to 0 otherwise;
MAINTAIN	Binary variable equal to 1 if the person in the sample pursues an investment strategy that maintains his wealth, and equal to 0 otherwise;
INCREASE	Binary variable equal to 1 if the person in the sample pursues an investment strategy that increases his wealth, and equal to 0 otherwise;
INHERITANCE	Binary variable equal to 1 if the person in the sample intends to bequeath money to heirs, and equal to 0 otherwise;
LNWEALTH	Natural logarithm of medium wealth as indicated in the questionnaire, including real estate;
FEM	= Binary variable equal to 1 if the person in the sample is a woman, and equal to 0 otherwise.