Asset allocation in private wealth management: Theory versus practice[♦]

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Abstract

This study analyzes the responses to a representative survey of wealth advisors on private wealth management practices, and compares the advisors' views to academic research in household finance. This study demonstrates that many wealth managers do not apply novel insights proposed by financial economists when advising their clients. Many practitioners focus on managing only the market risk exposure of their clients' portfolios. Although financial research has stressed the importance of incorporating human capital, planned future expenditures and the investment time horizon into the investor's asset allocation, these aspects are neglected by most practitioners.

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1. Introduction

Financial research has ignored the needs and objectives of private investors for a long time. By assuming complete markets, infinite time horizons and the absence of borrowing constraints, the standard results of financial theory are inappropriate for everyday asset allocation decisions of private investors.

The past decade, however, has seen a renewed interest of academic research in household finance. Rediscovering the seminal works of Robert Merton in the early 1970s, financial economists have developed models that allow incorporating investment constraints faced by private investors into conventional asset allocation models. This literature, briefly reviewed in section 2, proposes methods to incorporate the long but not infinite time horizon of private investors, to consider future expenditures in the investment process and to assess the impact of possibly uncertain future labor income on the optimal portfolio design.

But it is not obvious that private investors actually benefit from these new insights. Unless professional wealth advisors adopt these recently developed tools and concepts in their day-to-day work with clients, private investors cannot take advantage of these advances in financial theory.

The objective of this study is to provide an overview on current private wealth management practices, and to analyze whether the investment tools and concepts used are in accordance with modern asset allocation theory. This paper presents the results of a survey among private wealth managers on their approach to asset management for wealthy private investors or families. The survey was targeted to professionals working in private banks or family offices and asset management specialist for wealthy clients. This clear focus on the upper market segment is motivated by several reasons. First, wealthy individuals have more financial means, allowing them to put into practice the partly complex dynamic investment strategies advocated by theory. Second, wealth managers for rich private investors should have more time, resources and know-how to implement innovative asset allocation strategies.

Examining the views of a representative sample of 159 European wealth advisors, we find that current wealth management practices do not make extensive use of recent advances in asset allocation theory. Although wealth managers acknowledge the limitations of traditional investment concepts, such as mean-variance analysis, new approaches of dynamic asset allocation are used considerably less. Besides, many practitioners focus their financial advice to managing a client's portfolio exposure to market risks, such as interest rate risk and stock market risk. Individual client characteristics, including human capital, planned future expenditures and the investment time horizon, are not adequately considered by many wealth managers. A further cross-sectional analysis indicates that these results are largely independent of the financial institution the respondents work at, neither they depend much on the clients they advise.

The transfer of knowledge from academic research to professionals working in private wealth management has received little attention in the literature. The standard method of eliciting and analyzing information about finance practices is by surveying professionals from the field. A recent stream of studies analyzes corporate finance decisions in practice, and contrasts them with academic insights.[1] In contrast, only little research has been devoted to evaluating professional investment advice practices. Some early works by Smith and Goudzwaard (1970) and Gooding (1975) detect considerable differences between teaching, academic literature, and industry practices in the area of portfolio management. More recently, Amenc et al. (2011) compare investment management practices of institutional investors with recent developments in academic literature. They find that most practitioners are well aware of the main academic concepts, but fail to use these techniques in practice. To our knowledge, this is the first survey that explores private wealth management practices for a comprehensive sample of private wealth advisors, and compares their views to recent advances in asset allocation theory in household finance.

This paper develops as follows. The next section gives a short overview on asset allocation models that are particularly important in private wealth management. Section 3 outlines the survey

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[1] See Graham and Harvey (2001), Brav et al. (2005), Brau and Fawett (2006), Brounen et al. (2006) and Adam (2009).

methodology and discusses the descriptive statistics. Section 4 presents the main results of this study, the practitioners' usage and satisfaction of asset allocation models in private wealth management. In section 5, we analyze cross-sectional differences in responses depending on the characteristics of survey respondents and the clients they advise. Section 6 offers some concluding remarks and implications.

2. Asset allocation for private investors

Beginning with the pioneering work of Markowitz (1952), financial economists have been looking into optimal asset allocation for more than half a century. Portfolio theory first considered a static (myopic) framework, in which investors form a buy-and-hold portfolio that maximizes the expected utility derived from of their end-of-period wealth. Dynamic asset allocation strategies that allow for adjusting the portfolio in response to changes in market conditions and investor requirements were developed only 20 years later (Merton, 1969).

This section provides an overview on asset allocation models that are of particular importance for private investors. More comprehensive surveys are by Campbell and Viceira (2002) and Horan (2009).

2.1. Static asset allocation

Modern portfolio theory following Markowitz (1952, 1959) assumes that the investor's objective is to select a static portfolio with a high expected return relative to its volatility. A portfolio that has the lowest variance for a given expected return is said to be mean-variance efficient. If the investor can put his money into risky assets only, the set of mean-variance efficient portfolios can be obtained by solving constraint maximization problems. If – in addition – the investor has the possibility to invest into a risk-free asset, the set of efficient portfolios consists of all linear combinations between the risk-free asset and a unique efficient portfolio of risky assets, also called tangency portfolio. This result is known as the two-fund theorem (Tobin, 1958). In this case, the optimal allocation coincides with finding portfolios with the

maximum Sharpe (1966) ratio. The optimal faction invested in both funds depends on the investor's risk aversion.

To compute the tangency portfolio and the optimal investment split in risky and the risk-free asset, investors need accurate estimates of expected returns, variances, and co-variances of all assets. In practice, this can be very challenging, especially if many assets have to be considered. Furthermore, the mean-variance optimization is very sensitive to estimates in expected returns (Chopra and Ziemba, 1993), often generating unreasonable allocations (corner solutions, zero asset weights, and large weights in small stocks).[2]

The Black and Litterman (1992) allocation model tries to circumvent these problems by inferring expected returns directly from observable equilibrium market prices. Under the assumption that a given equilibrium asset pricing model like the CAPM (Sharpe, 1964; Lintner, 1965; Mossin, 1966) holds, market prices can be directly converted into expected return estimates that sustain the observable prices. Together with an estimated variance-covariance matrix, this model generates optimal portfolio weights for all assets. The Black and Litterman model can be extended to incorporate the investor's own views on expected returns by generating a mix between equilibrium returns and the investor's estimates.

Static asset allocation models are rather simple and intuitive, but have many drawbacks. First, long-term investors get utility from consumption at various points of time, and not from some terminal wealth only. More important, static models imply that investors hold the initial portfolio until the end of the time horizon. They thus do not allow rebalancing the portfolio when new information arrives, such as changes in the investment environment, or simply because time goes by.

2.2. Dynamic asset allocation

Dynamic asset allocation goes back to the works of Merton (1969) and Samuelson (1969). Dynamic models advocate a continuous portfolio adjustment depending on changes in the market

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[2] Robust estimation methods of expected returns, variances and co-variances to improve the mean-variance optimization is a focus of recent research (Amenc et al., 2008).

environment or the investor's circumstances. Although dynamic models can improve static allocations considerably, some of the models are highly complex and difficult to understand. Parallel to rigorous academic models based on the investor's utility maximization, the literature also put forward simpler models that focus on specific investor objectives, such as controlling portfolio risk or securing funds for planned future expenditures.

This sub-section summarizes the most important dynamic allocation strategies. We first present models derived from asset pricing theory, then we turn to more applied asset allocation strategies.

2.2.1. The basic dynamic asset allocation model

Merton (1969, 1971) and Samuelson (1969) show that the results of the mean-variance framework of Markowitz can be preserved if investors have a constant relative risk aversion and the investment opportunities are constant over time, i.e., returns are IID. The optimal investment strategy is then independent of the time horizon of the investor. For investors with log-utility, the investment horizon is irrelevant even if investment opportunities change over time. Similar to the myopic case, the higher the risk aversion, the lower the investment in the tangency portfolio of risky assets. To maintain a stable asset allocation over time, the portfolio has to be rebalanced continuously.

Empirical research, however, has well documented that nominal and real interest rates vary significantly over time. Furthermore, many studies (Poterba and Summers, 1988; Fama and French, 1989; Campbell et al., 1997) highlight that stock returns exhibit a tendency to revert to the mean over long horizons.

Long-term investors with non-log utility are not indifferent to such changes in the investment opportunity set. Risk-averse investors with standard time-additive utility care about maintaining a smooth consumption profile. When facing changing investment opportunities, investors will try to hedge the risk arising from this additional uncertainty and engage in a portfolio with negative returns in states with

relative good future investment opportunities, and vice versa (Merton, 1973). Investors optimally allocate their wealth into a in a locally risk-free asset (such as a bank account), the standard tangency portfolio of risky assets, and an additional intertemporal hedge portfolio, similarly consisting of risky assets (three-fund separation theorem). The composition of the two risky portfolios changes constantly, depending on the level of the short-term interest rate and expected excess returns of stocks.

In this dynamic framework, the time horizon of the investor matters. The longer the time horizon, the more important is the hedging. Short-term investors do not hedge, such that their optimal portfolio coincides with the static solution.

Especially the mean-reversion of stock returns has important consequences for long-term investors. First, mean revision of stock returns implies that stock returns are less volatile in the long-run rather than over the short horizon, and thus less risky (Siegel, 1994). Long-horizon investors should therefore allocate a larger fraction of his total wealth in stocks compared to an investor with a short horizon (Campbell and Viceira, 2005). Second, this pattern means that future expected stock returns are low after a period of high realized returns, and vice versa. Consequently, current market conditions are important for the asset allocation decisions. An optimal investment strategy increases the weight in risky assets after a period rather low stock returns, and vice versa (Campbell and Viceira, 1999, 2002; Campbell et al., 2003).

2.2.2. Extensions: labor income, life-cycle and future expenditures

Besides these principles of dynamic asset allocation, private investors need to consider some additional important aspects when designing optimal portfolios. First, human capital entails a stream of labor income that usually represents a substantial fraction of wealth and has therefore to be reflected in the optimal asset allocation. Second, the remaining life-expectancy of private investors decreases over time, which has implications for the portfolio choice. Finally, the portfolio has to accommodate the spending needs of private investors, especially when it comes to large expenditures. This subsection

summarizes how private investors' portfolios have to be adjusted to incorporate these major additional constraints.[3]

Labor income

Some private investors generate a substantial part of their fortunes from professional income. Although this contribution side of wealth cannot be traded, it should be treated as an asset and be reflected in the organization of the investor's portfolio (Merton, 1993).

The impact of professional income on the portfolio choice depends on several parameters: the degree of income uncertainty, its contribution to the overall portfolio risk and the importance of human wealth relative to financial wealth.

Although income of some professions, such as civil servants, is very predictable, income can be highly volatile and, more important, possibly correlated with returns of financial assets. Any investor with partly stochastic income will optimally try to hedge his income risk. The income stream is more valuable for the investor, if it is negatively correlated with other asset classes, such as the stock market. Heaton and Lucas (2000) show that professional income of entrepreneurs is usually positively correlated with the overall stock market, therefore increasing total portfolio risk. Similarly important is the relative size of labor income. In many cases, professional income can be significant. For young individuals, human wealth usually even dominates financial wealth.

The implication for asset allocation depends on the interaction of income risk and the importance human wealth out of total wealth. If labor income is stable, it can be treated as a safe asset, such that investors should tilt their financial portfolio towards risky assets (Hanna and Chen, 1997). If, by contrast,

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[3] In principle, risk related to labor income and future expenditures can also be incorporated in static asset allocation models. However, the consideration of these factors is more important in dynamic models.

professional income is highly correlated with returns of financial assets, private investors should seek less exposure to risky assets.[4]

Life-cycle investment

Another crucial aspect of long-term asset allocation is the finite live of private investors, and the various investor stages over the entire life. In the young age, a large fraction of most investors' wealth is captured by its non-tradable human capital. As private investors grow older, the fraction of human wealth naturally decreases (Bodie et al., 1992) while the financial wealth increases. Once reaching the retirement age, income is derived from financial assets only. On the other hand, even if the present value of future income remained constant, investors have to adjust their portfolios in response to the shortened investment horizon, since mean-reversion effects of stock returns declines over time.

Dynamic asset allocation has to incorporate the investor's life-cycle and horizon effects. If labor income can be considered risk-free, investors should tilt their financial portfolio towards risky assets only at the young age. As investors grow older, they should more and more shed risky assets, for two reasons. First of all, the fraction of safe human wealth decreases and should be replaced risk-free financial assets (Campbell and Viceira, 2002). Second, equities get riskier as the investment horizon decreases, which must be compensated by reducing exposure to equity markets. Professionals whose income is positively correlated with equity returns, in contrast should increase the proportion of wealth invested in risky assets over time, although from a lower starting point.

These theoretical considerations have led to the development of specialized investment products, that reduce their overall exposure to risky assets over time (Viceira, 2007). These so-called life-cycle or target-date funds are however deterministic, and thus do not benefit from time-varying investment opportunities (Martellini and Milhau, 2010), neither they reflect the investor's potential income risk.

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[4] Cairns et al. (2006) underscore the importance to incorporate the correlation of an investor's salary and stock market returns into the investor's portfolio. See also Jagannathan and Kocherlakota (1996), Campbell and Viceira (2002) and section 5.2 of Viceira (2007) and the literature cited therein.

Future expenditures

The objective of most private investors is not to accumulate wealth, but to finance some future expenditures. Examples for such expenditures can be large acquisitions, such as in real-estate property or investing in children's education (Merton, 2003). The most important future expenditures are usually the desired retirement income (in real terms), going beyond some form of public pension scheme, and bequests for the family.

These future expenditures are however at least to some part stochastic. Prices of specific assets and other expenditures or – more general – inflation rates are unknown to the investor. The presence of savings objectives changes the focus of investment decisions from pure asset management to an objective- or liability-driven focus, also called asset liability management (ALM).[5]
Instead of maximizing wealth, ALM focuses on maximizing asset values net of liabilities by incorporating planned future expenditures and their risk ex ante when designing the investment portfolio. ALM therefore prevents future mismatches between the investor's assets and liabilities. By explicitly making individual liabilities a part of the asset allocation decision, ALM leads to superior investments returns. Portfolios that may be optimal from an asset management perspective are usually not optimal when taking liabilities into account (Amenc et al., 2007).

ALM can be implemented using liability-driven investment (LDI). In analogy to the standard dynamic model with stochastic interest rates and equity excess returns, investors optimally hedge the risk related to future expenditures by investing a fraction of wealth in a liability-hedging portfolio (LHP). This hedges changes in the present value of future payment obligations. The rest of the assets are allocated to a

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[5] Since future expenditures can be conceived as an investor's liability, asset allocation models including future liabilities are known under the term asset-liability management (ALM). For a general reference on ALM, see Zenois and Ziemba (2006).

performance-seeking portfolio (PSP), i.e., the traditional tangency portfolio. The relative weight of PSP and LHP finally depends on the investor's risk aversion.[6]

Goal-based allocation provides a simpler framework to take investment goals of private investors into account. Compared to ALM, it is rooted in the literature on behavioral finance. Goal-based allocation recognizes that investors are not always fully rational, but tend to concentrate on specific investment goals. Goal-based allocation sets up an investment portfolio for each goal separately (Brunel 2006a, 2006b; Horvitz and Wilcox, 2007). This contrasts to ALM that captures all financial objectives and their interactions in a single liability benchmark.

2.2.3. Risk-controlled dynamic asset allocation

Dynamic asset allocation theories offer many insights into the optimal portfolio choice of private investors, but their actual implementation can be quite cumbersome. For investors whose main objective is to maximize terminal wealth while limiting downside risk, the literature has proposed specific dynamic investment strategies: portfolio insurance strategies and dynamic risk budgeting.

Portfolio insurance strategies guarantee a certain level of wealth while allowing investors at the same time to participate in rising equity markets. The option-based portfolio insurance (OBPI) following Leland and Rubinstein (1976) proposes to buy simultaneously a portfolio of risky assets, such as an equity index, and a put option written on it. The put option then hedges the downside risk of the equity investment. The constant proportion portfolio insurance (CPPI) of Perold (1986) and Black and Perold (1992) is a trading strategy that dynamically allocates assets between a risk-free asset and a portfolio of risky assets. First investors define a floor equal to the amount of wealth they do not wish to lose. The difference between the portfolio value and this floor is called the cushion. The investment strategy then

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[6] If the client's objective is to preserve wealth in real terms, ALM can be implemented by investing in inflation-linked bonds. Note that for long-term investors with liabilities, cash is not a risk-free asset, but an asset that is most highly correlated with these liabilities – in this case inflation.

involves allocating a fraction of total assets in risky assets in fixed proportion to the size of the cushion. The effect is similar to that of owning a put option – the portfolio's equity exposure goes to zero as the cushion approaches zero.

Dynamic risk budgeting transfers the idea of CPPI to a relative return context. Instead of guaranteeing a fixed amount of wealth, dynamic risk budgeting limits the underperformance of the portfolio compared to a risky benchmark. A fraction of the investment is allocated to this benchmark portfolio, the rest to some other asset or asset class expected to outperform the benchmark – similar to the risky asset in the CPPI. The higher the overall portfolio return, the higher the fraction of assets is allocated to the more risky assets, and the smaller the fraction allocated to the benchmark. Dynamic risk budgeting can be extended to include a wide range of additional constraints, such as maximum drawdown or trailing performance constraints.

3. Methodology and data

3.1. Survey design and methodology

The survey was taken with an online questionnaire that was distributed through electronic mail and a link on a website devoted to asset management research.[7] Respondents were asked to submit their responses by filling out the online questionnaire and leaving their contact details.

To capture the views of European professionals in the private wealth management industry, the survey targeted private bankers, family offices, and private wealth advisors. In addition, asset managers with a focus on wealthy individuals were invited to participate in the survey. The survey was taken in

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[7] The survey was published on the website of the EDHEC-RISK Institute: www.edhec-risk.com.

spring 2010. The first response to the survey was received on March 23, 2010, the last on May 10, 2010. In total, we received 159 responses.[8]

3.2. Summary statistics

This section presents some summary statistics of the survey respondents. To obtain a better insight on the private wealth managers reflected in this study, this section also describes the clients they advise.

3.2.1. Survey respondents

Table 1 presents the breakdown of survey participants by their type of financial institution, the size of their institution, and the country where they are based.

With around 40%, private bankers represent the largest fraction of survey participants, see panel A. This group of professionals is closely followed by representatives of asset or fund management companies (36%). Private wealth managers working for family offices account for another 18% of respondents. The remaining 6% represent other financial industry professionals, such as service providers or investment performance measurers.

This survey reflects the views of wealth managers working for a large variety of financial institutions, see panel B. The institutions range from a few small boutiques with less than EUR 100 million of assets under management from private clients (6% of respondents) to global firms with assets under management of more than EUR 10 billion (24% of respondents). For the most part or 70% of the sample,

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[8] In total, we received 182 answers to the survey. However, about 14% of the respondents reported that they were not private wealth management professionals. Since the aim is to include only experienced professionals from the field in the survey, these responses were discarded.

this study comprises the views of wealth advisors of medium-sized institutions, which have private client mandates between EUR 100 million and EUR 10 billion.[9]

Almost half (45%) of the respondents are based in Switzerland, reflecting the prominence of private banking and wealth management in the country, see panel C. Another 17% are from the UK, followed by respondents based in France, Germany, and Italy. Luxembourg, another important centre for private banking, accounts for 4% of the survey respondents.[10]

[Table 1 goes here]

3.2.2. Segmentation of respondents' clients

The needs and priorities of one client are likely to differ from those of another, differences that are likely to influence the views of their advisors. Table 2 gives an overview on the average client segmentation of survey participants. 26% of the wealth managers' clients are in the segment of the mass-affluent with a total net wealth of less than USD 1 million, see panel A. Nearly half are high-net-worth individuals (HNWI) with net assets of up to USD 30 million. Another 31% of the clients are ultra-high-net-worth individuals (UHNWI), those with total net wealth of more than USD 30 million. These are the average figures for the entire sample of respondents. Many of the responding wealth managers focus on only one of the three client segments, i.e., they serve only the mass affluent, HNWIs, or UHNWIs.

A further analysis of the mangers' clients reveals that 56% of them can be attributed to the so-called established wealth segment, i.e., individuals or families that has inherited wealth (panel B). 42% have acquired their fortunes recently, as first-generation entrepreneurs, for example. Finally, a substantial

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[9] As expected, there are considerable cross-sectional differences in the financial institutions covered. Whereas 87% of the private banks have more than EUR 1 billion of assets under management, only 26% of the asset management firms can say the same.

[10] There is a clear pattern in respondents' location and type of institution, reflecting that each of the financial centres focuses on specific market segments. 47% of the respondents from Switzerland report that they work for private banks, which compares to only 14% of the respondents from the UK, more than half of whom (51%), by contrast, focus on asset management for wealthy individuals.

share of the wealth advisors' clients generate their income from existing assets, either from shares in their own business (31%), or from a diversified asset portfolio (19%), see panel C. Nevertheless, nearly half of the respondents' clients generate at least some of their income from professional activity.

[Table 2 goes here]

3.3. Limitations

Like any survey, this study might suffer from some problems. First, the sample of survey participants was not taken randomly from the target population, but is based on a database of contacts of European private wealth management professionals. Since this sample might differ from the total population, this procedure could lead to a sample-selection bias. Participation was entirely voluntary, so there is a non-response (or self-selection) bias. Practitioners who responded to the questionnaire might have views different from those of the industry as a whole. Non-response could involve other biases as well. Specific sub-sets of private wealth advisors or professionals may have been more (or less) likely to respond to our questionnaire. As a consequence, the results of this study could be biased in one direction or the other. In the cross-sectional analysis in section 5, however, we do not find any strong pattern in responses depending on the survey participants' characteristics. This suggests that the results are largely robust to changes in the sample composition. Finally, survey respondents had no economic incentive to report their true beliefs, especially since the survey was not anonymous. But we see no compelling reason to hide true opinions, and we find no empirical evidence that respondents did so. Overall, we believe that the regional diversity and fair balance of private wealth management professionals make this study largely representative of the European private wealth management industry.

4.   Private wealth management practices

This section presents and analyzes the answers to the survey of private wealth managers. The first subsection takes a general look at the industry's usage and satisfaction of asset allocation strategies when advising private clients. Then we examine in more detail how wealth advisors incorporate important investor characteristics and constraints, such as labor income, when designing their client's portfolio.

4.1.   Asset allocation strategies: usage and satisfaction

Research has shown that institutional investors frequently make use of state-of-the-art asset allocation strategies as described in section 2 (Amenc et al., 2011). This section sheds light on usage and satisfaction of these concepts in private wealth management.

Table 3 presents the respondents' views on (1) the concepts' ability to incorporate the clients' spending objectives, (2) their capacity to integrate the clients' risk preferences and investment horizon, and (3) their usefulness to improve client communication. In addition, the table reports the response rates to the corrseponding survey questions. Since the questions were not mandatory, response rates may convey information about the wealth managers' familiarity with a particular asset allocation strategy. The higher the response rate, the more widely—we posit—these methods are actually used.

[Table 3 goes here]

While there are many consistent responses across the sample of responses, we highlight some interesting findings and surprising results. For example, survey respondents seem to be most familiar with the static mean-variance portfolio theory and goal-based allocation. More advanced life-cycle models which are especially valuable for long-term private investors elicit responses from only about half of those we survey, a response rate that suggests that these strategies are not widely used.

Goal-based asset allocation is judged best to incorporate a client's spending objectives; it is followed by ALM. The high satisfaction with these two asset allocation models along this criterion is expected, since they have essentially been developed to take into account a client's futures expenditures. However, since ALM is more sophisticated than goal-based allocation, the top two spots should be reversed in order. ALM may still be new to private wealth advisors; they may be wary of it, and greater complexity may also make it more difficult.

Practitioners consider goal-based asset allocation similarly very good to take into account a client's risk objectives and investment horizon. This judgement is disturbing, since goal-based allocation is not concerned with risk assessment or the explicit management of a client's investment horizon. Traditional mean-variance analysis is tied for second place with methods such as ALM and the life-cycle portfolio choice, which are designed specifically to capture the time dimension of investments.

Finally, goal-based asset allocation again obtains the best score in terms of client communication, presumably since its principles are rather easy to explain. ALM is ranked second, although it is probably far more complicated for the average client to understand. Mean-variance portfolio theory is ranked third. Possibly because mean-variance portfolio theory is taught in any course in financial economics, advisors can use this method to explain their ideas to clients very well. The Black and Litterman (1992) model brings up the rear in terms of client communication. Given that even advisors themselves are largely unfamiliar this model, anyone expecting this tool to be a suitable facilitator of communication is likely to be disappointed.

In a synthesis, the various asset allocation strategies are judged best to capture clients' preferences in terms of investment risk and horizon (average score: 1.52), and, to a lesser extent, in communicating with clients (average score: 1.43). However, wealth managers are most critical of the ability these concepts to incorporate the client's spending objectives (average score: 1.12).

In general, average scores of each of the allocation strategies considered are strongly correlated with their populatiry, as measured by response rates. Especially the assessment in terms of client communication is highly related to the response rate (correlation of scores $\rho=0.88$, p-value<0.01). This

close association suggests that the wealth managers' preference for simple concepts over more sophisticated models can be attributed to their populatity rather than their quality.

Against this backdrop, it is no surprise that goal-based assset alloction is considered the best allocation strategy by wealth managers – despite its limitations from a theoretical point of view. The traditional mean-variance analysis is best known to most professionals. Practitioners agree that this static model has shortcomings when it comes to incorporating the client's spending objectives and – to a lesser extent – his or her risk preferences and time horizon. More appropriate dynamic methods to incorporate a client's individual objectives and preferences, such as ALM or life-cycle investment, are still somewhat unknown.

4.2. Important aspects of asset allocation revisited

This section analyzes survey responses to questions that shed light on several facets which are of particular importance in private wealth management. These aspects include the importance of different types of investment risk, the consideration of individual client parameters in portfolio construction, and the incorporation of future expenditures in the clients' portfolios.

4.2.1. Investment risks

Investment portfolios of wealthy individuals are exposed to many different types of risk, all of which have to be considered. Besides standard market risks, i.e., stock market risk, interest rate risk and exchange rate risk, typical investment risks include also those originating from inflation and the business cycle. In addition, wealth advisors have to take into account important personal risks, for example professional income risk, i.e., the risk that future savings contributions may fall short. The unexpected longevity of a client, leading to an investment horizon longer than expected, can also be considered personal risk (Milevsky et al., 2006).

As table 4 shows, wealth managers consider standard market factors the greatest risks by far. Other risks which are similarly of great importance to private investors clearly rank behind. Unexpected inflation, for example, can reduce the value of any investment whose returns are defined in nominal terms, most of all the seemingly safe investment in short-term bonds. Although stock market fluctuations are obviously a major risk over short horizons, inflation risk is even more important in the long run. The importance of inflation risk was recognized early on in the portfolio choice literature, and it is surprising that private wealth managers are so much less concerned about it than they are about stock-market risk.

The responses also indicate that common market factors are considered more important than risk related to individual characteristics of the client, such as income risk and longevity risk. Although market factors are essential, this result suggests that wealth advisors do not pay attention to the very individual circumstances of each client. The analysis and consideration of macroeconomic factors are well within the grasp of mutual fund managers. Private wealth managers are supposed to know their clients much better, knowledge that should allow them to adjust the portfolios to the personal traits of their clients.

[Table 4 goes here]

4.2.2. Investment parameters

Besides market parameters, private wealth managers should consider different individual client parameters and when they construct asset portfolios for their clients: the investor's risk aversion, time horizon, professional income source and type and spending objectives.

Table 5 summarizes the importance of these factors to wealth advisors. As it turns out, the most important aspects for wealth managers are the client's risk aversion and time horizon. The nature of the client's income and his or her spending objectives as deemed much less important.

Risk aversion and time horizon are indeed important investment parameters, but these aspects can be reflected in the portfolio composition using traditional mutual funds that are also available for the less wealthy retail clients. For example, life-style funds (Viceira, 2007) or risk-profile funds address differences in risk aversion through a limited set of funds pitched to investors who fall into different categories of risk aversion. Differences in time horizon are addressed by life-cycle or target-date funds. The responses suggest that individual client characteristics are accorded much less importance than are the more generic characteristics.

[Table 5 goes here]

These answers are consisent with those in the previous sub-section. Practitioniers who stress the importance of income risk pay more attention to the nature of the client's income, for example (correlation of scores ρ=0.34, p-value<0.001). Similarly, wealth managers who focus on a client's investment horizon tend to worry more about inflation risk (ρ=0.36, p-value<0.001).

Table 6 summarizes the answers to a set of more detailed questions on how private wealth managers incorporate a client's risk-aversion, time horizon, spending objectives and professional income when designing portfolios for their clients.

The responses convey some interesting results. For example, private wealth advisors seem to use a large variety of asset allocation models to incorporate their clients' risk preferences, see panel A. Some of these models are rather sophisticated, such as allocation models based on the client's utility function, which about 40% of the practitioners use.

Similarly, almost half of the wealth managers use state-of the-art life-cycle models of the assets to take into account a client's time horizon (panel B). Explicit mean-reverting models are less important to private wealth managers; only one in four uses them. This might indicate that asset managers are aware of horizon effects in asset returns, but either do not use the appropriate techniques to take this feature into account, or do not know about these techniques.

In contrast, the client's future spending objectives are incorporated in a rather simplistic manner, on average (panel C). Half of the survey participants state that they simply analyze the portfolio's capacity to meet future commitments and objectives, which usually results in suboptimal asset allocations. The separation of funds, in theory the best approach, is used by only 42% of respondents.

Finally, uncertain future labor income can also be an important source of financial risk, especially for individuals that derive a substantial part of their income from professional activities. Only 64% of the wealth managers surveyed take the client's professional income into account when portfolios are constructed (panel D). Given that for young individuals labor income risk can be the most important risk by far, this result means that more than a third of the respondents fail to consider this crucial client parameter.

[Table 6 goes here]

Most of these views are consistent with the results presented in the previous section. For example, wealth advisors that consider the nature of a client's professional income essential are also more inclined to reflect income risk when designing portfolios (correlation $\rho=0.45$, p-value<0.001). Similarly, a higher perceived relevance of certain client characteristic is associated with a higher investment expertise. Wealth advisors that consider the client's specific spending objectives important tend to use liability-driven investment more often than other respondents ($\rho=0.17$, p-value<0.05).

This section shows that private wealth managers consider the clients' risk preferences the most essential parameter when advising their clients on their portfolio composition. Accordingly, practitioners seem to know the various asset allocation strategies that allow for a sound incorporation of risk preferences very well. In contrast, other important dimensions of asset allocation for private clients are considered less vital, and appropriate models to deal with them are known considerably less.

4.2.3. Implementing dynamic asset allocations

The implementation of dynamic asset allocation strategies involves different aspects to be considered, such as the frequency of portfolio rebalancing and the optimization of asset weights over longer time horizons. Table 7 reviews the private wealth managers' practices of implanting a dynamic portfolio strategy for clients.

The answers show that a large majority of respondents rebalance their clients' portfolio frequently, i.e., at least once a quarter (see panel A), although this incurs high transaction costs. Next, the survey shows that a majority of private wealth managers (55%) prefer to rely on a repeated single-period portfolio optimization, rather than using more complex multi-period optimization that explicitly considers future expected asset dynamics. Given that Balduzzi and Lynch (1999) have shown that repeated single-period portfolio optimization leads to inferior results, this result is disappointing. Though the importance of a client's time horizon is acknowledged, a majority of private wealth managers use single-period optimization which neglects this parameter.

The questionnaire also looks into how managers implement life-cycle investment strategies. Instead of selecting existing life-cycle funds that match a given client profile, the vast majority of wealth managers opts to design an individual life-cycle strategy for each client, see panel C. In the light of the wealth managers' great concern about a client's exposure to market risk factors and individual client characteristics (see table 4), this result seems contradicting. It may be that wealth managers consider life-cycle or target-date funds as poor tools for taking their clients' risk preferences into account (and not the time horizon of the investor), and therefore they might prefer to make more personalized offerings.

[Table 7 goes here]

4.2.4. Usage of quantitative market models

In many of research papers surveyed in section 2, the long-run development of stock markets is modeled with quantitative market models. In contrast to academics, only 23% of practitioners rely on quantitative stochastic models to assess the impact of future of stock prices on portfolio performance, see table 8. Even though most respondents consider horizon effects important, such as mean-reverting long-term equity returns, less than a quarter of respondents model them explicitly. Out of the models used, mean-reverting models are most popular, which is however in line with academic literature (Poterba and Summers, 1988).

[Table 8 goes here]

4.2.5. Asset liability management

Asset liability management (ALM) and liability-driven investment (LDI) are recently developed tools to incorporate a client's spending objectives into the portfolio structure. Panel A of table 9 shows that nearly half (48%) of the wealth managers surveyed are unfamiliar with the concepts of ALM and LDI. Apparently, not all wealth managers are up to date on current trends in private banking.

Knowing about ALM does not imply that this technique is actually used. Panel B shows that 57% of respondents who are familiar with ALM (equivalent to 29% of all surveyed) actually use it, either to maintain the purchasing power of clients (31%) or to ensure that specific spending objectives are met (26%). Put differently, only about 14% of all respondents take client-specific expenditures into account using an ALM framework. Only 4% of all survey participants do not think that this approach to private banking is promising. The fact that the majority of respondents who rely on ALM do not take specific

spending objectives into account suggests that private wealth managers are hardly offering fully customised services.

[Table 7 goes here]

5.   Cross-sectional analysis

Given the large variety of wealth advisors reflected in this survey, there might be some considerable heterogeneity among the views and practices across respondents. Practitioners working at certain financial institutions or providing services for a particular clientele might have views that differ from other respondents. Apart from some genuine interest in examining such differences, this analysis also allows to assess the general validity of the results presented so far. The more homogenous the responses, the less the results are attributable to the sample of wealth managers included in the survey.

This section examines cross-sectional differences in views and practices across wealth managers depending on the financial institution the respondents work at and their average client structure. First, professionals working at private banks and family office might have a closer contact to clients than asset or fund managers. This proximity to clients might influence their evaluation of private wealth management practices. Second, the size of the financial institution might shape the views of practitioners. Large organizations might have more resources to adopt and develop new asset allocation tools than smaller-sized firms.

The practitioners' opinions might also depend on the clients they advise. For example, the tools and investment allocation concepts of wealth advisors may depend on their clients' average level of wealth. Very wealthy individuals have more financial means, which allows their advisors to put into practice the more complex dynamic investment strategies advocated by theory. Besides, wealth managers for rich private investors have presumably more time and know-how to implement innovative asset

allocation strategies. Finally, clients that derive a substantial part of their income from professional activity differ significantly in their needs and demands from other wealthy individuals. Most of all, their income might be to some extent uncertain which adds to the overall portfolio risk.

To analyze cross-sectional patterns in the respondents' answers, we partition survey participants into several groups. First, we divide all respondents into a group of *specialists*, defined as professionals working at working at private banks and family offices, and *other wealth advisors*. Further, we group respondents into two sub-sets according to the size of the financial institution they are working at. *Advisors at large institutions* are respondents whose firm has more than EUR 1 billion in private banking assets under management. According to these segmentations, 58% of respondents (92) are specialists, and 52% of respondents (83) are working at large institutions.

To examine differences depending on client wealth, respondents are again divided into two sub-groups: if UHNWIs account for more than half of a wealth manager's clients, they are assigned to the group of *advisors to UHNWIs*. Otherwise, they are *normal wealth advisors*. Following this grouping, 24% (or 38) of the respondents are advisors to UHNWIs. Finally, we compare the answers of *advisors to professionals* with those who mainly work for non-professionals. Advisors to professionals are defined wealth advisors whose majority of clients generates at least some of their income from professional activity. By this classification, 37% (or 59) of respondents are advisors to professionals, the rest are *advisors to non-professionals.*

We re-consider the answers to all survey questions analyzed in section 4.2 and test for cross-sectional differences in the average answers between the various sub-sets. In total we examine answers to 34 sub-questions. Differences in Likert-type scales (used to assess the importance of investment risks and investment parameters) are examined with the Mann-Whitney (1974) U-test; for all other questions we resort to Fisher's exact test (1922).

There is only little heterogeneity of the respondents' answers along the criteria analyzed, see table 10. Only in 19 instances, there are significant differences between two sub-groups of wealth managers. Given that the analysis comprises 34 sub-questions for 4 different partitions, even a complete random

sample would detect about 14 significant differences at the 10% level. The upside of finding little cross-sectional differences across respondents is that any potential biases in the sample of practitioners surveyed is unlikely to change the results significantly, at least along the dimensions considered in this section.

Some of the results are nevertheless interesting. For example, we do not find that specialists, i.e., managers working at private banks or family offices provide more sophisticated services. If at all, they are more concerned with general market risks, such as interest rate risk, stock market risk and business cycle risk. Similar results hold true for advisors working for large financial institutions.

As expected, wealth advisors of very wealthy clients point out the importance of inflation risk, at least more than other respondents. They are also more concerned with labor income risk, but without putting this insight into action.

Investment managers who concentrate on the professionals seem to be incorporate a wide range of client characteristics when designing portfolios, thereby possibly providing most customized services to their clients. However, quite disturbingly, even advisors to professionals do not seem to particularly worry about their client's income risk.

6.   Concluding remarks

This paper presents the results of a comprehensive survey of private wealth managers on current advisory practices for wealthy individuals. In analyzing the industry's spectrum of views and opinions, we indentify several critical points. Although wealth advisors are aware of the limitations of traditional investment concepts, such as the static mean-variance analysis, they do not make extensively use of new dynamic asset allocation models. Some of this reluctance can be attributed to the inherent complexity of dynamic models. On the other hand, wealth managers might not be fully aware of the tools and concepts

recently developed to improve the asset allocation of private investors. This study also reveals that many practitioners are mostly concerned about their clients' portfolio exposure to standard market risk factors, such as stock market risk and interest rate risk. Truly customized financial advice that incorporates the client's human capital, spending objectives and investment time horizon is offered only by a minority of wealth managers.

The results of this survey have a number of implications, both for academics and practitioners. First, partly inadequate advisory practice for wealthy individuals suggests that the large mass of retail clients face even more difficulties to obtain sound investment advice. After all, wealth advisors for the upper market segment tend to have fewer clients, and hence more time and resources compared to retail bankers, and should therefore provide better investment recommendations.

Second, private wealth managers should be more willing to adopt contemporary asset allocation models when advising clients. Insufficient advice in private banking is not a consequence of a lack of appropriate investment tools and concepts. Rather, modern allocation strategies are not actually used. More training for practitioners could increase investment returns of private clients significantly, thereby improving client satisfaction and helping financial institutions to differentiate themselves from competitors.

Finally, financial economist should strengthen their efforts in developing asset allocation models that incorporate insights of rigorous economic theory, but that are at the same time viable in practice. One implication of this study is that the most sophisticated theories will probably never be used. Only a sensible mix between financial theory and practical considerations will enhance investment quality for private investors.

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Tables

Table 1: Summary statistics of survey respondents

Panel A: Financial institution	Respondents	Percentage
Private bank	64	40.3%
Asset management/fund management company	57	35.8%
Family office	28	17.6%
Other	10	6.3%
Total	159	100.0%

Panel B: Assets under management (private clients)	Respondents	Percentage
Less than EUR 10 million	9	5.5%
EUR 10 million – 100 million	23	14.5%
EUR 100 million – 1 billion	44	27.7%
EUR 1 billion – 10 billion	45	28.3%
More than EUR 10 billion	38	23.9%
Total	159	100.0%

Panel C: Country	Respondents	Percentage
France	11	6.9%
Germany	8	5.0%
Italy	8	5.0%
Luxembourg	7	4.4%
Netherlands	5	3.1%
Switzerland	71	44.7%
United Kingdom	27	17.0%
Other EU	14	8.8%
Non-EU	8	5.0%
Total	159	100%

This table reports the breakdown of survey participants by type of financial institution (panel A), the size of institution in terms of assets under management from private clients (panel B), and the respondents' country (panel C). All questions are single choice, mandatory questions.

Table 2: Average client segmentation of survey respondents

Panel A: Average client segmentation by net wealth	Percentage
Mass affluent (<USD 1 million)	26.3%
High-net-worth individuals (USD 1 million - USD 30 million)	42.9%
Ultra-high-net-worth individuals (> USD 30 million)	30.8%
Response rate: 152/159	100.0%

Panel B: Average client segmentation by origin of wealth	
Recently acquired fortunes	44.0%
Established wealth	56.0%
Response rate: 146/159	100.0%

Panel C: Average client segmentation by source of income	
Shares in own business	31.0%
Professional activity/salary	22.3%
Diversified asset portfolio	18.7%
Both professional activity/salary and diversified asset portfolio	28.0%
Response rate: 141/159	100.0%

This table gives an overview of the average client segmentation of survey participants. Panel A presents the average client segmentation by net wealth, panel B the average client segmentation by origin of wealth, and panel C the average client segmentation by source of income.

Table 3: Evaluation of asset allocation strategies by private wealth managers

Asset allocation strategy	Response rate	(1) Spending objectives	(2) Risk preferences and time horizon	(3) Client communication	Average
Mean-variance analysis	76%	0.95	1.58	1.56	1.36
Black-Litterman allocation model	41%	0.66	1.30	1.15	1.04
Asset liability management	65%	1.34	1.54	1.59	1.49
Goal-based allocation	67%	1.51	1.72	1.61	1.61
Life-cycle portfolio choice	53%	1.28	1.56	1.42	1.42
Portfolio insurance (CPPI, OBPI)	41%	0.98	1.42	1.33	1.24
Dynamic risk budgeting	55%	1.15	1.53	1.33	1.34
Average	57%	1.12	1.52	1.43	

This table summarizes the private wealth managers' views on selected asset allocation strategies with respect to the allocation strategies' ability (1) to incorporate a client's spending objectives, (2) to incorporate a client's risk preferences and investment horizon, and (3) to facilitate client communication. The table reports the average score among all responses received. The Likert-type scale goes from 0 to 2 (0=little value, 2=high value). The first column reports the response rate to each set of questions, i.e., to each of the asset allocation strategies.

Table 4: Importance of investment risks in private wealth management

Investment risk	Average perceived importance
Inflation risk	3.75
Interest rate risk	4.05
Currency risk	4.16
Stock-market risk	4.78
Business cycle risk	3.39
Income/professional risk	2.61
Risk of underperforming the market	3.15
Longevity risk	2.51
Average response rate: 92.5%	

This table summarizes the private wealth managers' perceived importance of investment risks in private wealth management. The table reports the average score among all responses received. The Likert-type scale goes from 0 to 6 (0=not important, 6=very important).

Table 5: Importance of investment parameters in private wealth management

Investment parameter	Average perceived importance
Client's risk aversion	5.07
Client's investment time horizon	4.93
Nature of the client's income	3.62
Current market conditions	3.54
Client's specific spending objectives	3.48
Client's general spending objectives	3.18
Average response rate: 95.2%	

This table summarizes the private wealth managers' perceived importance of investment parameters in private wealth management. The table reports the average score among all responses received. The Likert-type scale goes from 0 to 6 (0=not important, 6=very important).

Table 6: Incorporation of client parameters

Panel A: Risk-aversion	Respondents	Percentage
Asset allocation derived from the client's utility function	63	40%
Risk budgeting (in terms of, e.g., volatility, VaR, CVaR.)	73	46%
Floor on wealth (maximum drawdown)	67	43%
Portfolio optimization including risk objectives	68	43%
Other techniques	8	5%
Total	157	100%

Panel B: Investment time-horizon		
Considering the life-cycle of assets	73	48%
Mean reverting modeling of asset classes such as stocks	42	27%
Respecting constraints at the time horizon, e.g., dynamic risk budget management	52	34%
Other techniques	9	6%
Total	153	100%

Panel C: Spending objectives		
Controlling the risk related to the spending objectives	51	33%
Analysis of capacity to meet future spending objectives	77	50%
Separation between a portfolio to seek performance and a portfolio to cover risks related to spending objectives	64	42%
Other techniques	7	5%
Total	153	100%

Panel D: Income risk		
Yes	100	64%
No	56	36%
Total	156	100%

This table reports how private wealth managers incorporate a client's risk-aversion (panel A), time-horizon (panel B), spending objectives (panel C) and labor income risk (panel D) when designing portfolios for their clients. The percentages refer to the number of respondents to each question. The questions to answers in panels A to C are multiple-choice questions (select many), the question to the answer in panel D is a multiple-choice question (select one).

Table 7: Dynamic asset allocation

Panel A: Rebalancing intervals	Respondents	Percentage
Frequent rebalancing of asset weights	103	69%
Buy-and hold strategy over longer periods	47	31%
Total	150	100%
Panel B: Optimization technique for asset weights		
Multi-period optimisation that takes into account the future evolution asset weighs	61	45%
Repeated single-period optimisation at different points in time	74	55%
Total	153	100%
Panel C: Implementation of life-cycle investments		
Use of existing target-date funds that match a given client profile	41	30%
Designing a specific allocation for each client	94	70%
Total	135	100%

This table summarizes how private wealth managers implement dynamic asset allocation strategies. Panel A reports how often wealth managers rebalance the portfolio of their clients, panel B reports the usage of optimization techniques for asset weights over long time horizons, and panel C shows how wealth managers implement life-cycle investments. The percentages refer to the number of respondents to each question. All questions are multiple-choice questions (select one).

Table 8: Quantitative market models

Usage of quantitative market models	Respondents	Percentage (out of total)	Percentage (out of sub-sample)
Yes, out of which (select many):	34	23%	
Correlated random walks	10	7%	33%
Mean-reverting models	19	13%	63%
Markov-switching models	3	2%	10%
Other models	10	7%	33%
Total	30		100%
No	116	77%	
Total	150	100%	

This table summarizes the private wealth managers' usage of long-run quantitative market models. The percentages refer to the number of respondents to each question. The main question is multiple-choice (select one), the sub-question is multiple-choice (select many).

Table 9: Familiarity and usage of asset-liability management

Familiarity and usage with asset-liability management	Respondents	Percentage (out of total)	Percentage (out of sub-sample)
Familiar to some degree with ALM, out of which (select one):	79	52%	
Usage of ALM to manage a client's general spending objectives (maintaining general purchasing power)	24	16%	31%
Usage of ALM to manage specific client expenditures (maintaining purchasing power for a planned purchase)	20	13%	26%
No usage of ALM though it could be useful	27	18%	35%
ALM is not useful for private wealth management	6	4%	8%
Total	77		100%
Not familiar at all with ALM	74	48%	
Total	153	100%	

This table summarizes the private wealth managers' knowledge and usage of asset liability management. The percentages refer to the number of respondents to each question. All questions are multiple-choice questions (select one).

Table 10: Cross-sectional analysis

Panel A: Depending on type of financial institution	Specialists (92 respondents)	Other wealth advisors (67 respondents)	Difference in average score/ percentage	Econometric Test
Importance of interest rate risk	4.23	3.81	+0.42*	Mann-Whitney
Importance of stock market risk	4.97	4.53	+0.44*	Mann-Whitney
Importance of business cycle risk	3.63	3.05	+0.58***	Mann-Whitney
Importance of a client's risk aversion	5.27	4.78	+0.49**	Mann-Whitney
Incorporation of a client's labour income	58%	73%	-15%*	Fisher's exact

Panel B: Depending on size of financial institution	Advisors at large institutions (83 respondents)	Advisors at small institutions (76 respondents)	Difference in average score/ percentage	Econometric Test
Importance of interest rate risk	4.23	3.86	+0.37*	Mann-Whitney
Importance of stock market risk	5.04	4.51	+0.53**	Mann-Whitney
Importance of a client's risk aversion	5.28	4.84	+0.44**	Mann-Whitney
Usage of mean-reverting market models	47%	91%	-44%**	Fisher's exact

Panel C: Depending on client segmentation by wealth	Advisors to UHNWIs (33 respondents)	Normal wealth advisors (119 respondents)	Difference in average score/ percentage	Econometric Test
Importance of inflation risk	4.21	3.64	+0.57**	Mann-Whitney
Importance of labour income risk	3.13	2.48	+0.65*	Mann-Whitney
Importance of a client's risk aversion	5.39	4.98	+0.41*	Mann-Whitney
Incorporation of a client's labour income	44%	68%	-24%**	Fisher's exact

Panel D: Impact of client segmentation by source of income	Advisors to professionals (39 respondents)	Advisors to non-professionals (102 respondents)	Difference in average score/ percentage	Econometric Test
Importance of inflation risk	4.05	3.57	+0.48*	Mann-Whitney
Importance of a client's risk aversion	5.34	4.96	+0.38**	Mann-Whitney
Importance of a client's time horizon	5.15	4.78	+0.37**	Mann-Whitney
Importance of market conditions	3.92	3.40	+0.52*	Mann-Whitney
Importance of specific spending objectives	3.89	3.24	+0.65**	Mann-Whitney
Importance of general spending objectives	3.56	3.00	+0.56**	Mann-Whitney

This table summarizes cross-sectional differences across wealth advisors. Panel A reports significant differences in responses depending on the type of financial institution of the respondent. Respondents working at private banks or family offices are considered *specialists*, otherwise they are *other wealth advisors.* Panel B groups respondents into two sub-sets according to the size of the financial institution they are working at. *Advisors at large institutions* are respondents whose firm has more than EUR 1 billion in private banking assets under management. Panel C reports significant differences in responses depending on fraction of UHNWIs among wealth advisor's clients. *Advisors to UHNWIs* are defined wealth advisors if at least 60% of their clients have net assets under management in excess of USD 30 million. Panel D reports significant differences in responses depending on fraction of professionals among wealth advisor's clients. *Advisors to professionals* are defined wealth advisors if at least 60% of their clients generate at least some of their income from professional activity.

The Mann-Whitney (1974) is a non-parametric test to evaluate whether the observations of two subsamples have equally large values. It corrects the test statistics for differences in the sub-sample size. Fisher's exact test (1922) examines the significance of association of contingency tables. For small samples of categorical data, it provides more accurate results than does the Chi-square test. We do not report the test statistics themselves, but we provide only significance level at which the null hypothesis of independence or equality is rejected. *** denotes significance at the 1% level, ** denotes significance at the 5% level, and * denotes significance at the 10% level. Only significant differences are included in the table.