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PROFILE – OPTIMISE – COMPLY

Individual Portfolio Therapy

Make Patrimonial Management Truly Personal

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Abstract

Market environment and regulatory pressures have given a simultaneous impulse to the adequate recognition of investor financial profiles as a major challenge. Instead of viewing it as a cost center, we consider the profiling exercise as a precious source of information regarding the investor's investment horizon, risk perception and risk tolerance. The approach advocated here performs a rigorous evaluation of the personal characteristics of the investor to provide a fully individualized portfolio recommendation. Importantly, the adequacy of the portfolio with the profile can be dynamically monitored with an allocation framework that focuses on the strategic risk-return characteristics rather than a target asset allocation. This approach can be massively implemented while still keeping track of each individual's characteristics.

Why Investor Demands for Suitable Investment Advice are Unmet

MiFID and its context

The European Directive 2004/39/EC on Markets in Financial Instruments, commonly called "MiFID", was officially enforced in November 2007 and revised in 2008. Its preparation was an enormous challenge for financial institutions, mainly because this directive put the burden on banks to protect the retail consumer of financial services in many ways. The bulk of the effort has then been put on client order execution aspects (best execution, transparency). The other major dimension, related to the "suitability" requirement in financial advice, has been largely overlooked so far by financial institutions.

According to the Directive, a suitable portfolio investment advice can – and must – be done by the professional advisor with the proper knowledge of the investor. Specifically, the service provider must have a sufficient basis to (i) consider that the transaction is consistent with the client's investment objectives; (ii) consider that the transaction is such that the client is financially capable of facing any risk of the investment that is compatible with her objectives; and (iii) consider that the transaction is such that the client has the necessary experience and knowledge to understand the risks inherent to the transaction.

Practically, our observation is that most banks rushed to administer a standard questionnaire, ranging from 5 to at most 25 questions, to all their customers. In most cases, the questionnaire was completed so as to make sure to encompass all three aspects listed above, but not updated in order to enhance the knowledge of each customer. Note that insurance companies, which do not fall under the scope of the original Directive, did not even have to bother about this requirement, even though most insurers provide investment services in a very similar fashion to banks.

This "minimum service" delivered in the suitability scope is quite understandable. On the one hand, a profiling questionnaire already preexisted the Directive in most cases. It had been used already to profile many clients, mostly the wealthiest ones. Commercially, it would be difficult to lead them through a second questionnaire only for compliance reasons. Thus, a natural choice was to use the same questionnaire and generalize its use. On the other hand, being simultaneously confronted with the need to comply with IAS/IFRS, Basle II and other MiFID constraints, most banks probably felt that the suitability aspect was not a top priority.

Indeed, our interpretation of voluntary negligence of the matter is reinforced by the relative tolerance displayed by many national regulators prior to the financial crisis. Since best practices were commonly quite rudimentary in the area of investor profiling, and given that much more urgent and severe regulatory issues were growing, there was also no urgency to bother financial institutions with criticisms on their profiling systems, all the more because regulators had typically no clue about how the existing questionnaires could be substantially improved, or even why they should be in the first place.

What investors deserve

With the burst of the financial crisis, it has become evident that what used to be a more than decent adequacy between risk profile and investment advice, had suddenly become utterly insufficient during turbulent times. The deleterious combination of global downside correlation of financial assets with a sharp drop in market liquidity of many fixed income securities has put into question many assumptions underlying the construction of asset allocations. As the notion of "risk" was becoming more complex than the mere standard deviation of returns, and the financial properties of financial assets were found to be unstable over time, all investor profiles based on the familiar mean-variance framework with standard allocations would simply collapse. On top of this pure market issue, the notions of counterparty and concentration risks have ceased to be merely theoretical, as the crisis has caused numerous bankruptcies and blowouts.

We have all witnessed the immediate, emotional consequence of this crisis on investment portfolios: animated with fear and remorse, many wealth managers have drastically decreased the risk exposures of the majority of portfolios, thereby artificially imposing a much more conservative risk profile to their clients. This is not justified on rational grounds. It is not up to the adviser to dictate profile changes on the basis of market conditions. Their challenge lies elsewhere: they must deepen the understanding of their clients.

Consciously or not, investors now require that, should an accident ever happen again to their financial portfolio, this must not be a complete surprise. This means in particular that the notion of "risk" should be discussed by the investor and the advisor. Once both parties agree, the portfolio recommendation should reflect two dimensions: how risk is measured, and how the trade-off between the level of risk and the anticipated return is conceived. Nowadays, any wealth manager who still uses a simple questionnaire with the objective to map the investor in a scale from defensive to aggressive using the variance of returns as a measure of risk would be careless, and will be sooner or later sued by investors and challenged by the regulator.

This involves two major improvements in the way portfolios are recommended and managed: (i) all facets of portfolio risk are perfectly understood and correspond to the investor's perception of this risk; and (ii) the evolution of portfolio adequacy with the profile is mastered and monitored by the asset manager.

Beyond Defensive-Aggressive Portfolios

Risk perception

Article 35(4) of the MiFID Implementation Directive (2006/73/EC) states: "*The information regarding the investment objectives of the client or potential client shall include, where relevant,*

1. *information on the length of time for which the client wishes to hold the investment,*
2. *his preferences regarding risk taking,*
3. *his risk profile,*
4. *and the purposes of the investment."*

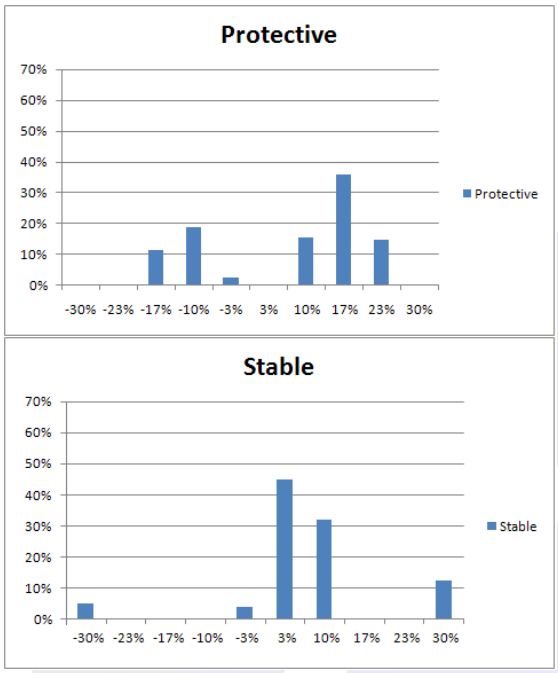
Besides the specific investment objective of the portfolio, this list features a notion of horizon (first item), of risk tolerance/aversion (second item) and a notion of "risk profile". Obviously, the risk profile represents a dimension that differs from risk tolerance.

There are many ways this notion of "risk profile" can be interpreted, but it features one invariant element: it must reflect the view that an investor has towards the likelihood of losing money. Some investors fear more intensively the possibility of not getting back their capital (or a guaranteed return) than others. Those "protective" investors depart from the standard mean-variance risk averters because they tend to view risk in a dichotomized way: outcomes above a threshold are not risky, while those below the threshold are risky.

Along with this dimension, we consider that investors' risk profiles can be represented in a continuum along two extreme bounds, between extremely "stable" investors (i.e. sensitive to variations around mean returns) and "protective" investors (i.e. sensitive to shortfalls from a minimum acceptable rate of return). Each investor's coordinates along this continuum reflect his risk perception. Risk perception has nothing to do with risk aversion, as this is purely a way to understand risk. To illustrate this view, consider Figure 1 below.

Both graphs represent histograms of yearly returns of two stylized portfolios. They share exactly the same expected return. However, each of them would be the optimal investment for two investors with distinct risk perception, but similar risk aversion. That is, in a scale from 0 (lowest risk) to 100 (highest risk), each would obtain the same score for its corresponding investor.

The top portfolio is the one chosen by the protective investor, while the bottom one is chosen by the stable investor.



Source: GAMBIT Financial Solutions S.A.

Figure 1
Return patterns for two portfolios with the same risk and expected returns for a protective investor (top graph) and a stable investor (bottom graph)

The first portfolio exhibits greater dispersion of returns than the second one, but the latter provides a significant probability (5%) of losing up to 30% of the investment. In statistical terms, the first portfolio has greater volatility, while the second one exhibits higher tail risk.

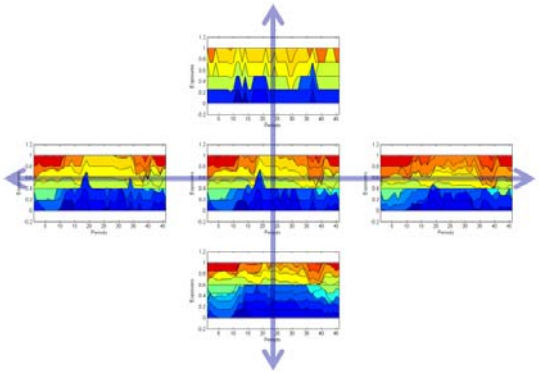
Typically, when confronted with these two graphs, an individual will express a strong preference for one or the other. Indeed, our experience shows that everyone considers his own choice as obvious, and believes that anyone else should rationally choose the same portfolio. This illusion of consensus clearly shows that risk perceptions are often rooted in each person's mindset. The risk perception dimension is relevant.

Two-Dimensional Risk Mapping

In light of evidence regarding divergences on the risk perception, a "one size fits it all" measure of risk can no longer be justified.

Our profiling approach rests on the twin calibration of the investor's risk perception and of his preferences towards risk and return. These two elements are reflected in the parameters of a utility function that represents the optimization program for an investor. The two-dimensional risk perception–risk aversion map can represent a variety of profiles. The "protective" and "stable" investors dichotomize risk perceptions for a median level of risk, while the "dynamic" and "defensive" investors represent the (more traditional) behaviors of a very strong and very weak level of tolerance towards risk, respectively.

Using a large set of indexes, including alternative investments, we have applied this approach to determine the evolution of optimal portfolio holdings over time (with constraints on maximal exposure per asset class) for five investor profiles, as illustrated in the next figure.



Source: GAMBIT Financial Solutions S.A.

Figure 2
Evolution of optimal allocations for different levels of risk perception (horizontal axis) and aversion (vertical axis)

The middle left and right graphs represent the optimal allocations for a protective and a stable investor, respectively. They clearly show a difference in the dominant allocation: the allocation for the stable investor features more alternative investments, represented by the orange area, than for the protective investor. This is a natural consequence of the fact that most hedge fund indexes feature a low volatility, but a fairly high tail risk: they are better suited for investors who primarily care about the stability of their returns.

What if a wealth manager ignores his client's risk profile, and only focuses on the risk aversion dimension? The consequences are probably not directly observable. Of course, the allocation will be sub-optimal, irrespective of the sophistication of the process, because risk is not properly measured. However, it is difficult to figure out what the optimum could be if one is not aware of the risk perception dimension.

It is more appropriate to consider what both the advisor and the investor miss by sticking to only one dimension in investor profiling. We view two potential problems:

"Nowadays, any wealth manager who still uses a simple questionnaire using the variance of returns as a measure of risk would be unconscious, and will be sooner or later sued by investors and challenged by the regulator."

"Two major improvements in the way portfolios are recommended and managed: (i) all facets of portfolio risk are perfectly understood and correspond to the investor's perception of this risk; and (ii) the evolution of portfolio risk is mastered and monitored by the asset manager."

1. First, desire for protection is too often confused with a defensive profile. This bias has been reinforced with the crisis. Such confusion leads to financial advice of lower quality. Nevertheless, for high net worth individuals, more sophisticated advisors often provide the possibility to get capital protection through CPPI or TIPP portfolios. This is an imperfect way of tackling the problem, but at least recognizes the issue.
2. Second, and most important, a portfolio risk that is not well understood leads to bad monitoring. As the recommended portfolio does not match the true desires of the investor, its behavior is very likely to diverge from the risk-return tradeoff expected by the investor. This threat is more dangerous than the first one, because the advisor stands powerless and cannot correct for a phenomenon that he cannot control. This is precisely where the statement we made before, "*if an accident has ever to happen again to their financial portfolio, this will not be a complete surprise.*" With all the associated consequences.

How Individual Portfolio Therapy Works

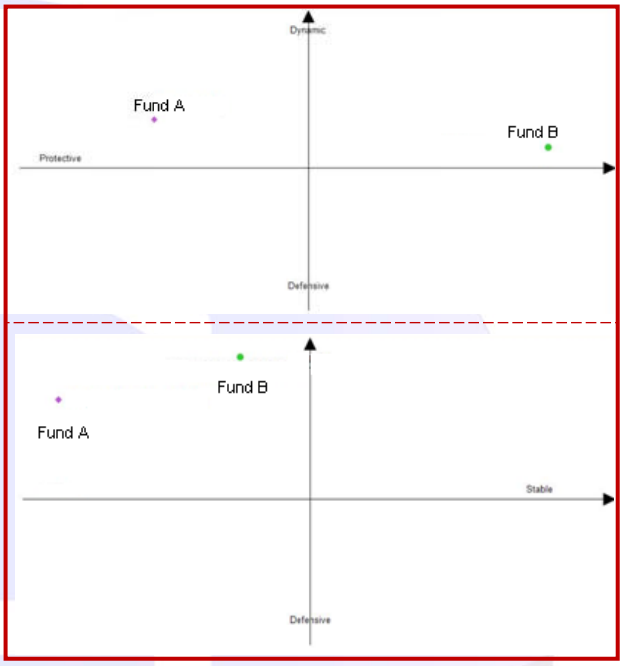
Monitoring portfolio adequacy to an investor's profile: A reverse-profiling approach

Creating an adequate portfolio fits the investor's needs at the time of the recommendation. It does not guarantee that this adequacy automatically persists over time.

Monitoring the profile of a portfolio is a much less classical exercise than monitoring its risks. It is also more delicate. A first difficulty comes from the fact that the portfolio realized return does not provide a reliable indication of the investor profile to which it corresponds. In the midst of the crisis period, almost only pure cash investments recorded a positive return: should this strategy be assigned to aggressive investors for the period simply because it outperformed any other one? Certainly not! But the problem is more tedious than that, because each portfolio recommended to an investor, whether the allocation has been good or bad, must be matched with a profile. For instance, a very aggressive portfolio might have performed very poorly during a given period, both in terms of risk and returns. Even though the performance has been terrible, this portfolio corresponds to a profile more than any other one, and it should be matched with an investor type.

Without a clear view on the target profile of a portfolio, the phenomenon of "profile drift" is almost unavoidable. It occurs if a joint control of the portfolio risk and return characteristics is not mastered, and could lead to the departure of the portfolio from its intended purpose, i.e. the initial correspondence to the investor profile.

This danger is illustrated by the following graphs, drawn from a real-life example.



Source: GAMBIT Financial Solutions S.A.

Figure 3
Evolution of the reverse profile of two actively managed funds from December 2007 (top graph) to October 2008 (bottom graph)

Two funds have been initially recommended to a protective investor (Fund A) and stable investor (Fund B), both of them profiled in December 2007. After the burst of the financial crisis, the portfolios evolve very differently. Their reverse profile by October 2008 is reported on the bottom graph. Fund A stays in the same ballpark, but Fund B has dramatically altered its risk-returns characteristics: it has become more aggressive (higher on the graph) and at the same time suits an investor who cares more about capital protection than stability of returns (moving to the left). This severe profile drift is unfortunate and a source of problems, both because the investor's trust has been broken, and because the higher risk profile might lead to adverse outcomes, source of litigation risk.

We propose a solution to this type of issue, through a change in paradigm of portfolio allocation and management.

To comply with the investor's needs and the regulatory requirements altogether is a single and positive challenge. The solution ensures that the portfolio is created and lives according to the single objective of tracking the customer's needs, instead of forcing him to accept the asset manager's choices.

Strategic Global Risk-Return Allocation: A new paradigm for wealth management

The classical Strategic/Tactical Asset Allocation framework does not provide a suitable answer to the legitimate expectations of the investor regarding his portfolio behavior. A steady allocation framework by asset classes, even though it can be fine-tuned by tactical decisions, does not offer enough flexibility to fully address the challenges of profile matching and profile drift.

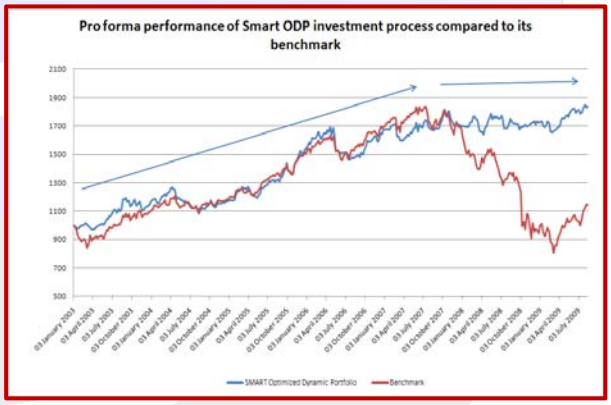
The approach that we advocate takes a different stance. Instead of sticking to a target allocation of asset classes, we reverse the problem and deliberately focus the portfolio strategy on risk allocations.

The strategic global risk-return allocation framework is a top-down approach, where decisions upon asset classes are replaced by a target behavior of portfolio risk. It entirely focuses on the control of risk, through a clear identification of the types of risk to be considered and the desired level of trade-off between risk and return. The tactical aspects of this framework are met through arbitrages between risk and return depending on the perceived market environment. Allocation to asset classes and individual securities are secondary – they only enter the framework through constraints on maximum holdings and rotation.

We have applied the principles of strategic global risk-return allocation to a real portfolio, called "Optimized Dynamic Portfolio (ODP), managed by Smart Private Managers (Luxembourg), which selects the assets entering the portfolio, and under our guidance for the quantitative optimization aspects.

The ODP fund uses a portfolio optimization system called FolioMaster provided by Gambit Financial Solutions (Belgium) and applies to an investor financial profile with a median risk perception and an aggressive risk aversion. The fund aims at realizing a quite aggressive risk-return trade-off, in the neighborhood of 70% of the risk of a full equity portfolio as considered by this type of investor. We have set no limits to the minimal or maximal composition of the equity asset class, and loose to cash investments. In order to limit the erratic behavior of the fund's allocations, we imposed an asset turnover constraint on the portfolio holdings. The expected return for each asset is assessed using a short-lived exponential moving average, i.e. the fund is momentum-driven. Finally, to cut tail risk, we impose a strict limit to the Modified Value-at-Risk of each allocation. The fund started live on Dec. 31, 2008, and its composition is rebalanced weekly.

This method has proven to be very effective. The purpose of the optimization (of expected utility) with risk and turnover constraints is primarily to deliver the same risk-return trade-off as a risk benchmark by overweighting equities in stable times and getting rid of global correlations in turbulent times, such as in 2008. The outcome from the backtesting, and the returns obtained to date in 2009, confirm that this is an achievable objective. The performance of the fund is compared to a composite portfolio, even though it cannot be interpreted as the fund's "benchmark" in the classical sense – the definition of an asset-based benchmark would deny the managerial focus on risk control rather than a target asset allocation. The results are summarized in the figure and table below.



Source: SMART Private Managers & GAMBIT Financial Solutions S.A., pro forma performance from January 2003 to August 2009 using the optimal allocation model excluding transaction, administration and management costs.

Figure 4
Cumulative return of ODP and its reference portfolio – 2003-2008

	Smart ODP	Benchmark
Return 2003	14.28%	9.08%
Return 2004	2.94%	9.06%
Return 2005	30.99%	26.79%
Return 2006	8.64%	12.31%
Return 2007	1.37%	-0.72%
Return 2008	1.74%	-43.77%
Average Return	**10.33%**	**3.98%**
Volatility (yearly)	**11.19%**	**19.11%**
Max Drawdown	**-13.68%**	**-56.10%**

Source: SMART Private Managers, GAMBIT Financial Solutions S.A.

Table 1
Risk and return characteristics of ODP and its reference portfolio

"The portfolio is created and lives according to the single objective of tracking the customer's needs, instead of forcing him to accept the asset manager's choices."

"The wealth manager can achieve a long-lasting goal of the private banking industry: create standard portfolios that continually meet the investor's requirements and fully comply with MiFID on all aspects."

Combining large-scale asset management with individualized investor advice

Setting a variety of investor profiles and being prepared to monitor the risk-return characteristics of financial portfolios, the wealth manager can achieve a long-lasting goal of the private banking industry: create standard portfolios that continually meet the investor's requirements and fully comply with MiFID on all aspects. Because of the systematic application of this process, some standardization is possible while keeping intact the individualization point of view.

Consider Fund B in the preceding section. We have decomposed this portfolio into its components and have inserted these inputs into the FolioMaster optimization software developed by Gambit Financial Solutions (Belgium). This framework enables us to modify the investor profile by changing the parameters of the utility function, which serves as the basis for the optimal allocation program.

In a risk-return framework similar to (but more sophisticated than) the classical mean-variance referential, we can represent the initial fund's coordinates, but also the efficient frontiers that can be drawn from the same assets for a protective, median, and stable investor profiles.

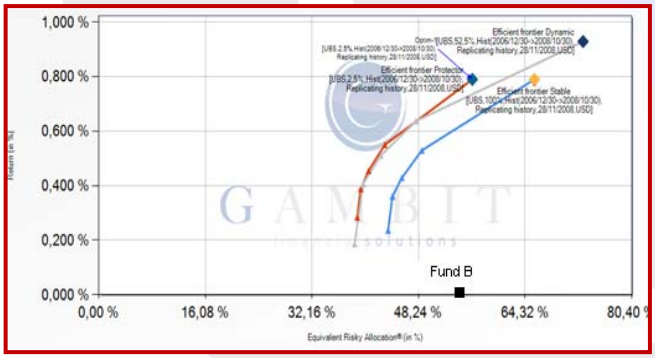


Figure 5
Efficient frontiers drawn for three risk perception levels with the assets of Fund B

Each efficient frontier corresponds to a different risk perception. Unlike the mean-variance frontier, the lines coexist as each of them provides an optimal portfolio composition for a particular vision of risk. Two investors with the same risk aversion but a different sensitivity between extreme risks and volatility risks will end up with a different portfolio.

Along each efficient frontier, going from left to right leads to creating portfolios with increasing risk and expected returns. Thus, the risk aversion dimension can also be adequately taken care of by setting risk targets for each investor profile. The FolioMaster software designed by Gambit Financial Solutions goes even further, as it provides a utility maximization framework that optimizes the customer's risk-return trade-off

Combining the diversity in efficient frontiers to encompass and exactly match various investor profiles with the dynamic management of the risk-return characteristics of each portfolio provides an integrated method to industrialize the process while still providing a high quality service to customers. We can dare to draw a parallel with gene therapy, as the cure for the investor's financial problem relies on a deep knowledge of his intrinsic characteristics and a rigorous process to build the proper medicine and keep it effective.

Concluding Remarks

Through the individual portfolio therapy framework, we provide an alternative tool to get a proper response to an issue that has revealed critical for wealth management: how to convince the investor that his profile is useful and his portfolio is adequate. The potential benefits of such an approach are twofold. First, it turns a regulatory constraint typically considered as a cost center as a true opportunity to capture and convince customers, and thus increase its user's "share of the wallet". Second, it answers the high net worth individual's need for a true personalized service, and justifies a market segmentation up to the single person level as a customer segment without inflating the costs.

There are things that the individual portfolio therapy framework does – hopefully – not do however. Being a toolbox for investor profiling, this system does not replace the human expertise in the selection of the most appropriate assets, nor in the determination of the expected returns of the portfolios. The parameterization of the approach is perfectly under control of its administrator. Last but not least, the way the profiling is done will continue to considerably influence its outcome: such a human perspective is unavoidable, and it is indeed desirable as it creates a necessary feeling of trust. We do not confuse the missions – a framework for adequate profiling does not replace human contact, expertise or skills.

About the Author

Georges Hübner is the Deloitte Professor of Financial Management at HEC-University of Liège. He is also Associate Professor of Finance at Maastricht University, Affiliate Professor at EDHEC (Lille/Nice) and Invited Professor at the University of Brussels. Georges regularly provides preparation seminars for the GARP (Global Association of Risk Professionals) and CAIA (Chartered Alternative Investment Analyst) certifications. He is an associate research fellow of the CREF at HEC Montreal.

He is also the co-founder and the Chief Scientific Officer of Gambit Financial Solutions, a spin-off company of HEC Management School - University of Liège that produces innovative software solutions for investor profiling, portfolio optimization and risk management.

Georges has published numerous books and research articles about credit risk, hedge funds and derivatives. He is the inventor of the Generalized Treynor Ratio, a popular portfolio performance measure.