



# Edhec-Risk

Asset Management Research

Editorial

## Thoughts on the Future of the Investment Management Industry

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**Professor Lionel Martellini, the new director of EDHEC-Risk Institute, reflects upon recent and expected changes affecting the investment management industry, and how the Institute ambitions to re-position its research and educational activities in the face of these changes.**



Lionel Martellini

### **New Challenges in Institutional and Individual Money Management**

This past July witnessed an important transition within EDHEC-Risk Institute, with the departure of my colleague and friend Professor Noël Amenc, who has decided to dedicate his full-time attention and energy to the development of ERI Scientific Beta – a dedicated entity created by EDHEC-Risk Institute in December 2012 in an effort to make our research on equity portfolio construction and smart factor indices even more useful to, and accessible by, asset owners and asset managers under the form of investable benchmarks.

Since the creation of EDHEC-Risk Institute about 15 years ago, the investment industry has experienced a series of profound structural changes, and a number of new challenges are increasingly being faced by both institutional and individual investors as a result of these changes. As I am about to start my tenure as director of EDHEC-Risk Institute, it appears fitting to reflect upon these profound changes, and also upon the upcoming trends that are expected to reshape this industry, and which should have a corresponding profound impact on how EDHEC-Risk Institute will evolve under my leadership in the years ahead.

On the institutional side, pension funds have been particularly impacted by the shift in most accounting standards towards the valuation of pension liabilities at market rates (mark-to-market), instead of fixed discount rates, which has resulted in an increase in liability portfolio volatility (Fabozzi et al., 2014).<sup>1</sup> This new constraint has been reinforced in parallel by stricter solvency requirements that followed the 2000-2003 pension fund crisis, and ever stricter solvency requirements are also increasingly being imposed on insurance companies in the US, Europe and Asia.

These evolutions in accounting and prudential regulations have subsequently led a large number of corporations to close their defined-benefit pension schemes so as to reduce the impact of pension liability risk on their balance sheet and income statement. Overall, a massive shift from defined-benefit pension to defined-contribution pension schemes is taking place across the world. As a result, individuals are becoming increasingly responsible for making investment decisions related to their retirement financing needs, investment decisions for which they have no expertise. In this context, the investment management industry has a great responsibility in terms of the need to provide individuals with suitable retirement solutions.

Unfortunately, currently available investment options hardly provide a satisfying answer to the retirement investment challenge, and most individuals are left with a choice between, on the one hand, safe strategies with very limited upside potential, which will not allow them to generate the kind of *target* replacement income they need in retirement and, on the other hand, risky strategies offering no security with respect to *minimum* levels of replacement income – see Bodie et al., 2010, for an analysis of the risks involved in target date fund investments).<sup>2</sup>

In such a fast-changing environment and an increasingly challenging context, the need for the investment industry to provide not only institutions but also individuals with sound long-term investment solutions has become more obvious than ever.

### **The Old Investment Paradigm has Become Obsolete**

The standard long-term investment approach widely adopted in institutional money management practice consists in grouping individual securities into somewhat arbitrary asset classes or sub-classes according to several dimensions such as equity versus debt, and then country, sector and/or style within the equity universe, or country, maturity and credit rating within the bond universe.

In this traditional approach, asset allocation practices are firmly grounded around one overarching foundational concept, the *policy portfolio* – a theoretical reference portfolio allocated among asset classes according to a mix deemed to be most appropriate for an investor. Once a centralised decision maker (e.g. a pension fund chief investment officer) has decided how much capital should be allocated to the different asset classes and sub-classes, one or more internal or external asset managers are then expected in a second step to decide how to allocate the funds made available to the individual securities within the corresponding asset class (see van Binsbergen et al., 2008, for a recent analysis of the efficiency loss involved in this two-step process).<sup>3</sup> In this old paradigm, the key sources of added value are therefore (1) the ability to design a meaningful policy portfolio, and (2) the ability to select the right managers, who themselves are expected to demonstrate an ability to select the right securities.

### **The Death of the Policy Portfolio and the Emergence of Liability-driven Investing**

In the face of the aforementioned profound structural changes, this old paradigm has progressively been recognised as obsolete for a number of independent reasons.

First and most importantly, it should be recognised that this old paradigm is a purely functional method for organising the investment process which is somewhat orthogonal to the needs of investors. Because of its sole focus on market risks (risks embedded within asset classes benchmarks and associated investment managers), the traditional approach fails to account for what is the only relevant risk for investors, namely the risk of not achieving their meaningful goals.

Unsurprisingly, the first driving force behind the paradigm change that has taken place in institutional money management over the last 15 years has been the progressive recognition that pension fund investments should not be framed in terms of one all-encompassing reference policy portfolio, but instead in terms of two distinct reference portfolios (Martellini, 2006).<sup>4</sup> These two portfolios are, respectively, a liability-hedging portfolio (LHP), the sole purpose of which is to hedge away as effectively as possible the impact of unexpected changes in risk factors affecting liability values (most notably interest rate and inflation risks), and a performance-seeking portfolio (PSP), the focus of which is to provide investors with an optimal risk/return trade-off, without any constraints related to a possible liability mismatch. This dual portfolio approach is consistent with the "fund separation theorems", which lie at the core of asset pricing theory since Tobin (1958)<sup>5</sup> and which advocate a separate management of performance and risk control objectives. More generally, and regardless of the exact form of implementation of what is known as *liability-driven investing* (LDI), this change has led to an increased focus on liability risk management, which is precisely a first step towards properly accounting for the investor's goals, and the risk factors that impact the probability of said goals being achieved.

The second driving force has been the death of the policy portfolio as a relevant approach to strategic asset allocation decisions, regardless of the presence or the absence of liabilities. This death of the policy portfolio, which was announced, or rather predicted, by Peter Bernstein in the March 2003 edition of his "Economics and Portfolio Strategy" newsletter, independently of the emergence of an increased focus on liability risk management, has resulted from the recognition that there is no such thing as a meaningful policy portfolio; one should instead think in terms of a meaningful dynamic policy portfolio strategy. The claim here is that the presence of a substantial amount of predictability in time-varying risk and return parameters for financial assets invalidates the relevance of any optimal portfolio that would be held constant by investors for a sustained period of time with no revisions as a function of changes in market conditions (Merton, 1971).<sup>6</sup>

There is actually an independent motivation for switching from static to dynamic LDI strategies. Even if market conditions do not change, it is actually useful to independently revise the allocation to the performance versus hedging portfolio as a function of the *margin for error*, formally defined as the distance to minimum funding ratio levels. To use a simple analogy to illustrate the superiority of dynamic LDI strategies versus their static counterparts, let us consider the example of someone who is given a car with no brakes or accelerator. If one is forced to drive a car at a constant speed (because of the absence of any mechanism to adjust the speed up or down), that constant speed will have to be really slow to avoid crashing whenever the road takes a turn. As a result, one will not cover too much ground, and the probability of reaching a given target destination is zero, unless the destination is very close (case of an almost fully-funded investor). On the other hand, if the car is equipped with an accelerator and brakes, which allow the driver to slow down if and when needed, then one can start at a much higher speed, which in turns converts into a much greater chance of reaching the objective – see Badaoui et al. (2014)<sup>7</sup> for more details on the benefits of *dynamic* LDI strategies.

### **The Emergence of Factor Investing and Smart Beta Solutions**

In parallel to the emergence of liability-driven investing, a new approach known as factor investing has recently emerged in investment practice, which recommends that allocation decisions be expressed in terms of risk factors, as opposed to standard asset class decompositions. Again, the focus is to move away from a market-centric perspective towards an investor-centric perspective, which should start with a thorough analysis and proper understanding of the risk factors that have a meaningful influence on the probability of asset owners achieving their goals. While risk factors are already commonly used for the risk and performance evaluation of actively managed portfolios, the current focus is on identifying the proper framework under which factor investing and risk allocation is expected to generate welfare gains for asset owners.

At the exact same time, the relevance of security and manager selection has been questioned with heightened intensity in the face of (i) accumulated evidence of the inability of most managers to outperform standard market indices on the basis of security selection skills, and (ii) accumulated evidence of the inefficiency of such cap-weighted indices in the first place (Amenc et al., 2006).<sup>8</sup> While market cap indices are natural default choices as asset class benchmarks, recent academic and industry research has indeed offered convincing empirical evidence that these indices tend to exhibit poor risk-adjusted performance. This inferior risk-adjusted performance can be explained by two independent causes, namely the presence of an excessive amount of unrewarded risk due to their extreme concentration in the largest cap securities in a given universe, and the absence of a well-managed set of exposures with respect to rewarded risk factors. For example, cap-weighted indices have a natural large cap and growth bias, while the seminal work by Fama and French (1992) has found that small cap and value were instead the positively rewarded biases.<sup>9</sup> In this context, the emergence of smart beta investment solutions is blurring the traditional clear-cut split between active versus passive equity portfolio management – see, for example, Amenc et al. (2012).<sup>10</sup>

### **From Investment Products to Investment Solutions**

While these developments have started in institutional money management, they are increasingly transferring to individual money management, with strong expected benefits

for households.

At the risk of stating the obvious, the recent changes emphasise the fact that institutional and individual investors alike are facing complex problems, for which they need dedicated investment solutions, as opposed to off-the-shelf investment products. These problems can be summarised broadly by the need to finance substantial levels of consumption with relatively limited dollar budgets (limited contributions from the beneficiaries and/or their sponsors) and (regulatory- or self-imposed) risk budgets.

Investment management will be justified as an industry only to the extent that it can demonstrate a capacity to add value through the design of meaningful investment solutions that allow investors' to meet these challenges (Merton, 2003).<sup>11</sup> This recognition is leading to a new investment paradigm, with substantial welfare improvements expected for asset owners. This paradigm has been labelled *liability-driven investing* (LDI) for institutional investors, whose problems are broadly summarised in terms of their liabilities, and it has been labelled *goal-based investing* (GBI) for individual investors, whose problems can be fully characterised in terms of their specific consumption of bequest goals throughout their lifetime (Deguest et al., 2015).<sup>12</sup>

A variety of common meaningful goals can be identified for most individuals including wealth accumulation, financing children's education, or generating minimum and target levels of replacement income in retirement, already mentioned as arguably the greatest challenge for most individuals.

Some changes with respect to existing investment practices are needed to help meet these formidable challenges. Just as in institutional money management, the need to design an asset allocation solution that is a function of the kinds of particular risks to which the investor is exposed, or needs to be exposed to meet liabilities or fulfil goals, as opposed to purely focusing on the risks impacting the market as a whole, makes standard approaches (which are based on balanced portfolios invested in a mixture of asset class portfolios actively and passively managed against market benchmarks) mostly inadequate.

Overall, the design of meaningful investment solutions for individual investors is intimately related to the capacity to deliver proper risk management. The quintessence of the art and science of investment management is essentially about finding optimal ways to spend risk budgets that investors are reluctantly willing to set, with a focus on allowing the greatest possible access to performance potential while respecting such risk budgets. Risk hedging (required for securing investors' essential goals), risk diversification (required for efficiently harvesting risk premia) and risk insurance (required for delivering upside performance needed to enhance the probability of achieving investors' aspirational goals while securing their essential goals) are known to be three useful approaches to achieve optimal spending of investors' limited risk and dollar budgets – see Badaoui et al. (2014)<sup>13</sup> for an application to institutional money management and Deguest et al. (2015)<sup>14</sup> for an application to individual money management. While each of these sources of value added is already used to some extent in different contexts, a comprehensive integration of all these elements within a fully disciplined investment management framework is perhaps the most important challenge that our industry is currently facing.

The emergence of this novel LDI/GBI paradigm is not only a threat for traditional asset management firms, but also a source of opportunity.

At the asset allocation level, we have seen that the "death of policy portfolios" has led to the development of *fiduciary management services* based on *dynamic liability-driven investing*. At the asset class level, the disappointment over expensive active multi-manager structures and over poor performance of passively managed portfolios has led to the development of *factor investing* based on *smart beta* and *risk allocation*.

Even greater opportunities exist in individual money management, an industry which is about to experience an industrial revolution based on cost-efficient goal-based investment solutions.

**Mass Customisation versus Mass Production: The True Start of the Industrial Revolution in Investment Management?**

Mass production (as in *product*) happened a long time ago within investment management, with the introduction of mutual funds and exchange traded funds (ETFs). The missing piece of the puzzle is now mass customisation (as in *customised* solutions). By definition, mass customisation is a distribution and manufacturing technique that combines the flexibility and personalisation of “custom-made” products with the low unit costs associated with mass production. Within Modern Portfolio Theory, mass customisation is trivial: if investors’ problems can be fully characterised by a simple risk-aversion parameter, then the aforementioned fund separation theorems state that all investors need to hold a *specific* combination of two *common* funds, one risky fund used for risk premia harvesting, and one safe (money market) fund.

In reality different investors have different goals, and the suitable extension of the fund separation theorems implies that if the performance-seeking building block can be the same for all investors, the safe building blocks – which are known as goal-hedging portfolios (Deguest et al., 2015)<sup>15</sup> and are the exact individual money management counterparts of liability-hedging portfolios within institutional money management – should be (mass) customised. Besides, the allocation to the safe versus risky building blocks should also be engineered so as to secure investors' *essential* goals (e.g. *minimum* levels of replacement income) while generating a relatively high probability of achieving their *aspirational* goals (e.g. *target* levels of replacement income).

That mass customisation is the important challenge that our industry is facing has long been recognised, but it is only recently that we have developed the actual capacity to provide such dedicated investment solutions to individuals. In an article by Merton (2003), the title of which has directly inspired that of this present contribution, this very point was very explicitly made.<sup>16</sup> *“It is, of course, not new to say that optimal investment policy should not be “one size fits all”. In current practice, however, there is much more uniformity in advice than is necessary with existing financial thinking and technology. That is, investment managers and advisors have a much richer set of tools available to them than they traditionally use for clients. (...) I see this issue as a tough engineering problem, not one of new science. We know how to approach it in principle (...) but actually doing it is the challenge.”*

Paraphrasing Robert Merton, let us recognise that designing meaningful retirement solutions does not indeed require a new science. All the ingredients, which have already been reviewed in this piece, are perfectly well-understood in the context of dynamic asset pricing theory (see, for example, Duffie, 2001)<sup>17</sup>, namely (1) a safe (goal-hedging) portfolio that should be truly safe; (2) a risky (performance-seeking) portfolio that should be well rewarded; and (3) an allocation to the risky portfolio that (3.i) reacts to changes in market conditions and (3.ii) secures investors’ essential goals (EGs) while generating a high probability of reaching aspirational goals (AG). From a formal standpoint, the problem can be approached via the so-called *convex duality or martingale* approach to dynamic asset allocation problems (Karatzas, Lehoczky and Shreve (1987)<sup>18</sup>; Cox and Huang (1989)<sup>19</sup>), where one first defines an optimal state-contingent wealth for investors given their long-term objectives and constraints and then obtains the optimal asset allocation strategy as the dynamic replicating portfolio strategy for the contingent pay-off.

On the other hand, scalability constraints required to address mass customisation do pose a number of tough engineering challenges, since it is hardly feasible to launch a customised dynamic allocation strategy for each individual investor. There are in fact two distinct aspects of scalability (Martellini and Milhau, 2015)<sup>20</sup> – scalability with respect to the cross-sectional dimension (how to design a dynamic strategy that can approximately accommodate the needs of different investors entering at the same point in time) and scalability with respect to the time-series dimension (how to design a dynamic strategy that can approximately accommodate the needs of different investors entering at different points in time).

### **EDHEC-Risk Institute and the New Investment Paradigm**

The magnitude of what is happening should not be under-estimated. We have reasons to believe that our industry is about to experience somewhat of an industrial revolution.

We currently are at the confluence of historically powerful forces. On the one hand, liquid and transparent access to risk premia harvesting portfolios is now feasible with smart factor indices, which are cost-efficient alternatives to active managers. On the other hand, distribution costs are bound to go down from their stratospheric levels as the trend towards *disintermediation* continues, particularly through FinTech and robo-advisor initiatives, which are putting the old business model under strong pressure, and forcing wealth management firms to entirely rethink their business model and the value that they are bringing to their clients. In this profound soul-searching process that is under way, our industry should not lose sight of the proper perspective on what is happening, namely a unique opportunity for investment management to add value to society as a whole.

Risk management, defined as the ability for investors to efficiently spend their dollar and risk budgets so as to enhance the probability of reaching their meaningful goals, will play a central role in this industrial revolution that will eventually lead to scalable, cost-efficient and investor-centric investment solutions. EDHEC-Risk Institute, through its research and education programmes, has extensively explored these dimensions over the last 15 years, and will intensify its efforts in the years ahead.

On the educational front, in addition to the Advances in Asset Allocation seminars held every year in partnership with the CFA Institute in London and New York, in November 2013 we launched a series of joint executive education seminars around the unifying theme "Risk and Investment Management", within an international programme jointly managed by Yale School of Management and EDHEC-Risk Institute. The focus of these seminars, delivered both in London (EDHEC-Risk campus) and New Haven (Yale campus) is precisely on utilising the latest academic insights to help investment professionals better understand and implement advanced investment approaches and methodologies. Following the success of the programme's first year, we are proposing a new and improved version of the programme for this academic year, allowing participants of the full series to acquire the joint Yale School of Management-EDHEC-Risk Certificate in Risk and Investment Management. This programme will eventually be complemented by a suitably designed digital course offering that will provide a truly novel form of pedagogical experience.

On the research front, more efforts will be dedicated to investigate the implications of the industrial revolution starting to impact the investment industry, both in terms of improved building blocks such as smart factor indices and in terms of improved risk allocation methodologies to such improved building blocks. EDHEC-Risk Institute will also be involved in a limited number of private research projects in partnership with key institutions (asset owners or asset managers). These projects, which will have a focus on the design of improved investment solutions for institutions and individuals, represent an additional opportunity for the research conducted within EDHEC-Risk Institute to have a meaningful impact on investment practices. Some of these private and public research efforts will be conducted in partnership with colleagues such as Professor John Mulvey at Princeton University, with whom we have a fruitful partnership that also led to the jointly organised EDHEC-Princeton institutional money management conference, held every other year at the Princeton Club in New York.

In closing, I would like to take this opportunity to thank all the members of EDHEC-Risk Institute, whose dedication and enthusiasm explain why we have been able to accomplish so much over the last 15 years, and why we will accomplish more in the years ahead. I feel truly privileged to lead this team. I have of course a particular thought for Noël and I wish him the best of luck in his efforts to develop ERI Scientific Beta. Last but not least, I would like to take this opportunity to thank all the followers of our research and educational initiatives around the world, including the readers of this newsletter. Engaging in a fruitful dialogue with you is our main and ultimate *raison d'être*.

## Footnotes

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