Proving Incentives for Long-Term Investment by Pension Funds

The Use of Outcome-based Benchmarks

Fiona Stewart

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Abstract

A fundamental goal of any pension system is to ensure that members receive an adequate income when they retire. Although traditional defined benefit pension plans set out how pension income will be determined in advance and then strive to deliver this, the growing number of defined contribution plans accumulate a sum of assets which can then be turned into a pension income on retirement. However, the amount of this retirement income is not predefined. This frequently leads to a focus by not only most pension providers, but also regulators and pension plan members themselves on the short-term

accumulation of pension assets rather than the longer-term goal of securing an adequate retirement income. This paper discusses a possible solution to this challenge: the use of benchmarks to encourage pension funds to invest with the longer-term goal of delivering adequate retirement income in mind. Examples are provided of leading pension funds that already work with long-term, outcome-based benchmarks. The paper suggests a methodology for pension regulators to use in order to incentivize pension funds in their jurisdictions to adopt a similar approach.

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PROVING INCENTIVES FOR LONG-TERM INVESTMENT BY PENSION FUNDS –THE USE OF OUTCOME-BASED BENCHMARKS

Fiona Stewart¹

JEL Classification:

- G15: Financial Economics / General Financial Markets / International Financial Markets
- G18: Financial Economics / General Financial Markets / Government Policy and Regulation
- G23: Financial Economics / Financial Institutions and Services / Non-bank Financial Institutions; Financial Instruments; Institutional Investors
- G28: Financial Economics / Financial Institutions and Services / Government Policy and Regulation
- J26: Labor and Demographic Economics / Demand and Supply of Labor / Retirement; Retirement Policies

Sector Board: Financial Sector (FSE)

¹ This paper was written by Fiona Stewart, Senior Financial Sector Specialist, Global Capital Markets and Non-Bank Financial Institutions Group. fstewart1@worldbank.org

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Incentivizing Long-term Investment by Pension Funds – The Use of Outcome-focused Benchmarks

I. Introduction

1. Following the Global Financial and Economic Crisis (GFC), privately managed, individual account pension systems (Pillar II in World Bank parlance) have come under great scrutiny. With their widespread introduction over the past two decades - particularly in the Latin America and Central and Eastern Europe regions - their performance and their ability to deliver adequate, secure pensions are rightly being examined.
2. The investment performance of these systems so far has not always been as envisaged. Charges in many cases have remained too high for too long and been a drag on net returns, and contributions have not been sufficient to reach a reasonable replacement rate. Pressure to reduced or remove individual accounts from pension systems has grown, particularly in the face of fiscal deficits at the national level.² There are a number of causes of this poor (actual or perceived) performance of Pillar II pension funds – ranging from the misaligned industry incentives to poor regulatory frameworks.³
3. While these shortcomings and the need for continued reform of Pillar II systems have been recognized,⁴ the value of and need for these arrangements to form part of a diversified sources of retirement income remains. The global aging problem, which is relevant in all developed and most developing regions, makes efficient pre-funding of savings essential. Many of these countries have pay-as-you-go (PAYG) systems which are less and less able to withstand worsening dependency ratios (where not only the demographic dependency ratio deteriorates but the economic one is even more under pressure with jobless, low growth in many parts of the world).⁵ These countries will have to experience a growing role for funded pension systems in addition to the old PAYG pillars be it within the public system (usually mandatory) or private (voluntary). Many other countries never had such a wide contributory PAYG system, but these will also need savings by the active for their inactive years. In short, the efficiency of funded pension systems will have an increasing influence over pension levels.
4. This note looks at one issue which has contributed to the shortcomings of Pillar II pension performance - the short-term investment horizon of most pension funds. A possible solution is discussed - i.e. the use of benchmarks to encourage pension funds to invest with the longer-term

² This stems from the issue that introducing these systems involves a short-term increase in costs to governments which have to continue to pay existing benefits while simultaneously funding contributions to future pensions. In addition, governments facing severe financial challenges also used pension assets as a ready source of cash. See (Price and Rudolph 2013).

³ For a more in-depth account see (Price and Rudolph 2013)

⁴ See for example (Price and Rudolph 2013), (Schwarz et al 2014)

⁵ Funded systems can also make it harder (less automatic) for worsening dependency ratios to translate into fiscal exposure. They are also useful for gradually changing the division of financial liability for old age income across the state (concurrent and future tax payers) vs. individuals. In addition they diversify single issuer risk.

goal of delivering adequate retirement income in mind. The purpose of the paper is to help pension system regulators think about how they may incentivize funds operating in their jurisdiction to adopt such an approach. This paper does not pretend to have all the implementation answers, but the adoption of the philosophy can go a long way to helping ensure that the suite of regulatory measures is better designed towards achieving secure, adequate income in retirement, which is the ultimate goal of all our pension systems.

5. After analyzing the problem of short-termism in Section II, the paper goes on to consider how such long-term, outcome focused benchmarks can be created in Section III, whilst Section IV provides some examples of leading pension funds around the world which have adopted such an approach. Section V offers some conclusions.

II. Short-termism of Pension Fund Providers and Regulatory Misincentives

6. The main goal of any pension system is to ensure that members receive an adequate pension income when they retire. While traditional defined benefit (DB) pension plans set out what that pension income will be in advance and then strive to deliver it, the growing number of defined contribution (DC) plans accumulate a sum of assets which can then be turned into a pension income on retirement. However, the amount of this retirement income is not predetermined (and indeed in many countries that introduced DC private pillars, pay-out phases will become important only in many years to come or/and the legal framework for setting up the pay-out phase is still in preparation). This frequently leads to a focus by not only most pension providers, but also regulators and pension plan members themselves on the short-term accumulation of pension assets rather than the longer-term goal of securing an adequate retirement income. The risk of not achieving this goal can be termed ‘pension risk’.
7. Pension investment regulation in most countries currently serves to reinforce this focus on the short-term delivery of investment returns rather than the long-term generation of a pension income. Investment risk is generally controlled via limits on the amount of a portfolio which can be invested in certain assets.⁶ Though strict investment restrictions may achieve the basic goal of safeguarding retirement savings, these rules do not come without costs. Vitas (1996) argues that portfolio restrictions may be required in the initial stages of pension reform when there is a lack of qualified asset managers and capital markets lack strength and capacity, as asset allocation limits are a way of isolating pension fund assets from agency and systemic risks in capital markets – though this assumes that pensions are restricted to investing in domestic assets and does not consider the fact that international diversification in the face of an undeveloped domestic capital market could be optimal from a risk/return perspective (taking into account foreign exchange risk).
8. However these investment restrictions create distortions in asset management, limit opportunities for diversification and can hamper investment performance.⁷ Pension funds, particularly in developing economies, often end up controlling a disproportionate share of some of the markets for those securities in which they are allowed to invest – i.e. they cannot trade in these markets

⁶ Details of investment restrictions around the world can be found in the regular OECD survey: <http://www.oecd.org/finance/private-pensions/annualsurveyofinvestmentregulationofpensionfunds.htm>

⁷ (Srinivas and Yermo 1999). See also Del Guercio (1996)

without affecting prices. To the extent that investment in private securities is limited, capital market development is hampered. Regulation is needed for protection, but regulatory intrusion can do harm as well as good.

9. Where restrictions are particularly tight, there is effectively no distinction among fund managers.⁸ In many cases asset managers are expected to ‘make the most out of the markets’, provide a few percentage point real returns, or outperform their peers. Indeed, Impavido et al (2009) state that investment risk is amplified by the lack of long-term targets for pension fund managers, compounded by the lack of connection between the accumulation and decumulation phases, exposing individuals to annuitization risk. The authors argue that again this problem stems from members poor understanding, allowing pension fund managers too much market power.
10. Srinivas and Yermo (1999) found that after investment limits were relaxed in the 1980s pension fund performance improved significantly. Their analysis of Latin America leads them to conclude that statutory portfolio limits should not be continued in the long run – and indeed significant regulatory changes have taken place since.
11. The main issue with these asset class restrictions is that they focus on short-term volatility without considering the ultimate risk to pension fund members – i.e. will they receive an adequate retirement income. This is particularly the case where the restrictions are especially tight (e.g. in terms of imposing minimum as well as maximum allocations, heavily restricting permissible investments, allowing only short adjustment periods to return within limits).⁹ Indeed, such asset class restrictions can contribute to an overly conservative investment approach (often in conjunction with other factors, such as local market limitations) - which is initially supported by the members of the pension plan due to financial literacy and behavior economic biases reinforcing the focus on the short-term and the avoidance of risk.¹⁰ Consequently, though protecting against short-term portfolio losses, these investment approaches may not be sufficient to deliver an adequate retirement income over the long-term. As described by Blake et al (2008), this is the equivalent of worrying about air turbulence on a flight without considering whether the plane is actually going to reach its destination.
12. Regulators have recognized these short comings and have tried to move beyond the ‘blunt tool’ of asset class restrictions. For example, many Latin American countries have adopted a ‘multifonds’ system with portfolio restrictions differentiated by age. In Mexico the use of a value at risk (VaR) maximum limit was tried for pension funds (though was abandoned in 2013). Bernstein et al (2013) recognize that “*traditional measures of risk, such as the standard deviation of returns or value-at-risk, seem inadequate for long-term investors.*”
13. Other regulators have tried to move more towards controlling the outcomes which DC pension fund deliver via the introduction of guarantees. However, examples from Central and Eastern

⁸ This is without considering relative performance benchmarks. For a discussion of this issue see the presentation by Viceira, L., M. and Rudolph, H. ‘*The Use of Guarantees on Contributions in Pension Funds*’, World Bank Contractual Savings Conference, January 2012 and (Stanko 2003).

⁹ It should be noted that some restrictions (e.g. on investments in plan sponsors assets) are recommended for investor protection, even within fully liberalized, ‘prudent person’ jurisdictions – see (OECD 2006) ‘*Guidelines of Pension Fund Asset Management*’.

¹⁰ See (Benartzi and Thaler 2007), (Bernstein and Chumacero 2006) amongst other research.

European pension systems in particular¹¹ show that these too can introduce misaligned incentives into the pension system which actually increase rather than decrease the risks of achieving an inadequate pension income as the introduction of guarantees not only increases the cost of the system and lowers returns to contributors, but also creates distortions in the asset allocation of the pension funds. These factors translate into lower pensions in the future.

14. Randle and Rudolph (2014) argue that guarantees on either the nominal value of the pension fund result or relative guarantees based on the performance of competitor funds increases pension risk, as managers invest the pension fund in inefficient portfolios that will be unable to deliver adequate benefits at retirement age but will minimize the risk that they will have to subscribe additional capital which they are required to put up in order to back these guarantees. Pension fund managers consequently move the investments of pension funds into portfolios that try to minimize the probability of triggering the guarantee guiding their investments with the objective of protecting their own capital (reserve requirement), instead of ensuring that pension funds are invested in portfolios aimed at optimizing the expected value of the pensions of the current contributors at retirement age.
15. Randle and Rudolph (2014) go on to discuss how just as the way investment risk is controlled can introduce misalignments into pension fund management and actually end up increasing rather than mitigating pension risk, the way investment risk is measured can have the same effect. Again short-term performance is usually the focus.
16. Other regulatory and agency issues also combine to reinforce the short-term focus of pension fund providers, which prevent pension funds from acting in their potentially beneficial capacity as long-term investors. These include principal agent issues allowing fund managers to derive profits from short-term performance rather than longer-term gains (particularly where conservative allocations are rewarded almost the same as risky allocations). In addition fees are often charged based on short-term performance rather than longer-term measures, and accounting and solvency regulations may actually incentivize investment in short-term, liquid assets.
17. The pension systems introduced into Central and Eastern Europe (CEE) in the last 10 to 15 years are examples of how short termism has been implicitly built into the initial second pillar investment regulation and practice. All countries started with strict investment limits, fee structure with heavy emphasis on net asset value fee, and some kind of relative or absolute rate of return guarantee which induced herding behavior in pension funds and led to short term focus of pension funds, regulators, and their clients simultaneously. Most CEE transition countries also launched their second pillars in parallel with capital market and financial system reforms, and in absence of longer term financial instruments. After a decade of second pillar implementation and global economic crisis, most ECA countries have been struggling with continuing with their multi-pillar pension reforms.
18. The short-term focus of pension regulation and practice have apparently contributed to difficulties in pension reform implementation, negative public perception about the second pillars, and full or partial reform reversals such as in Hungary or Poland. Pension reform objectives at reform inception - commonly stating a replacement rate target of around 50-60%, half of which expectedly provided through second pillar DC accounts - were overwhelmed by short run developments, in particular by negative rates of return during the financial crisis period. Recent attempts to improve the second pillar regulation in many countries included introduction of life-

¹¹ For a more detailed discussion of these examples see (Randle and Rudolph 2014).

cycle funds with possible opt-out for specific age cohorts. In most countries, however, the investment rules were kept across the life-cycle funds.

19. A dislocation between the phase of accumulating pension assets and their decumulation or pay out compounds these problems, the focus being solely on building up assets, not on what these will be used for post-retirement. Again to use the plane analogy of Blake et al (2008), it is like taking two different aircraft, one which transports you for the ascent and one for the descent and having to change between them in mid-air.
20. Despite the theoretical findings that short term return maximization is not conducive to long-term return maximization, the regulatory framework of pension fund management companies puts excessive emphasis on the short-term. Therefore, it is not obvious that typical regulatory framework of pension funds is conducive to optimal pensions.¹² A new approach to protecting against investment risk is required which meet the following criteria for effective investment regulation:¹³
 - is conducive to optimizing the expected value of the pension at retirement age;
 - needs to measure risk from the perspective of achieving the final objective (pension risk),¹⁴ and not as a function of the monthly/quarterly returns;
 - avoids too much regulatory intrusion in the investments of pension funds.
21. Designing optimal portfolios for pension fund contributors is not in reality the objective of most pension fund management companies, and (due to the lack of knowledge and engagement by plan members) competition within pension markets is not sufficient to make this the case.¹⁵
22. In systems where pension funds are commercial entities, pension fund management is a business of fees. Such an environment easily leads to herding, when managers produce annual performance very similar to each other's in order to avoid underperformance, and to sub-optimal long term returns. It is always much harder to win a new client than to keep one, mainly due to people's passivity (low elasticity of demand with respect to prices), very often encountered in mandatory or quasi- mandatory systems. Therefore if the expectations are as above, the potential downside of taking risks outweighs the upside. Herding could also lead to everyone taking too much risk for a long-term perspective (life cycle fund US where many still at high level of equities at retirement). A manager's set of incentives does not include being too much above the market in one year and below the other.¹⁶ Since in some cases optimal portfolio design requires taking high short term volatility, pension fund managers may not have the incentive to build these

¹² (Castañeda and Rudolph 2011)

¹³ (Rudolph et al 2010)

¹⁴ For a methodology on pension risk see Berstein, Fuentes and Villatoro (2013)

¹⁵ See (Basak and Makarov 2014). (Castañeda and Rudolph 2010).

¹⁶ It is important to note that for the market, the industry in general it may also be dangerous to be 'too' long term oriented and risk taker if a bad year or two arrive, as in such circumstances politicians and the public may start having second thoughts about the whole funded pillar. Moreover, long-term investment might be risky even in the case of rationally motivated arbitrage because price corrections may last long enough to make arbitrageurs bankrupt.

portfolios.¹⁷ Pension fund providers need to be incentivized to be responsible for good pension design which delivers adequate pension incomes.¹⁸

III. Creating Benchmark Portfolios

24. The proper approach to pension design, including for DC schemes, is to start calculating back from a desired/required pension level and setting a contribution rate, investment return target and consequent long term investment strategy adequate to reach this goal. Given, say, a 60% replacement rate target at the age of 65 and a contribution rate of 10%, one needs to calculate expected annuity prices based on mortality data and estimates about improvements, and then use asset return and wage curve modeling to see what sort of investment performance and portfolio may be necessary to reach the pension capital required.
25. It may turn out that the set of replacement rate / retirement age /contribution rate does not allow for a realistic investment performance, in which case one or more of those parameters may have to be adjusted - though some of these decisions, such as the contribution rate, may well be outside the control of the supervisory authority (e.g. in mandatory systems where they are set in legislation). Indeed, some of the problems with second pillar systems have been driven more by unrealistic expectations beyond the specific short-term investment challenges outlined in this paper.
26. This approach is fundamentally different from the standard one of ‘contributions are defined and benefits will be as much as investment strategies succeed in delivering’. From day one a long term investment strategy and portfolio must be utilized, whose only objective is to lead to adequate pensions.
27. Given this goal, an alternative approach to controlling investment risk is required. Bernstein et al (2013) argue that it is necessary to define an appropriate variable on which to measure pension risk, one that includes all relevant sources of risk faced by members of the pension system. *“The target variable that best represents the member’s position on retirement is the replacement rate...The appropriate measurement of risk is given by the marginal effect on the expected replacement rate of carrying out a particular investment strategy, the scatter around that expected value and the shape of its density.”* The best way to align regulation with the long-term goal of delivering adequate pension income is through the use of benchmarks or reference portfolios. These are designed to deliver a targeted pension income within the parameters of the greatest probability and the least risk.

¹⁷ See (World Bank 2013), (Bazak and Makarov 2009), (Castañeda and Rudolph 2010), (Rudolph et al 2010)

¹⁸ According to Blake et al. (1999), Ibbotson and Kaplan (2000), and Iglesias and Walker (2010), strategic asset allocation explains more than 90 percent of the variability of pension fund long term returns. .

Figures 1+2: Benchmark Setting in DC Pension Systems

Source: authors

28. In order to build these benchmark portfolios, first an independent body (independent from government and separate from the fund management industry) needs to establish the target objective for the pension funds.¹⁹ This is usually expressed in terms of a replacement rate – i.e. the expected pension income expressed as a percentage of final salary. A target replacement rate for average individuals is usually in the 50-70% range. For reference, the average replacement rate from mandatory pensions is the OECD is 55%,²⁰ while the International Labor Organisation (ILO) recommends a minimum 40% replacement rate from the public pension systems.²¹ It should be noted that this is the target for the pension system as a whole. The amount that comes from a funded second pillar individual account will vary (for example, this is the bulk of the pension in Chile, but a small part of the overall system in Sweden).
29. Given this target replacement rate and the level of contributions into the fund, a target return can be set (assuming these inputs are internally consistent). A benchmark portfolio can then be established with the maximum probability of achieving the desired return with the minimum amount of risk, based on the projected returns, volatility and correlations of various asset classes. This benchmark portfolio should be low cost, allow for adequate diversification and based on passive index investments.
30. The difficulties of achieving this in practice, particularly international diversification, are noted. In many countries second pillar pension systems were set up with one of their goals being to develop the local capital markets and therefore requiring funds to invest domestically— though the evidence of this working in practice has been mixed. The examples of the reserve funds from Canada and New Zealand demonstrate the need for international diversification to make portfolio optimization work, with the Armenian case showing the difficulties of applying this approach where local capital markets are not yet mature.
31. Alternatively, Viceira outlines²² that the benchmark could be made up of a portfolio of riskless assets which would generate the targeted replacement rate at the relevant investment horizon.²³ The performance of pension funds would be measured against the performance of such a benchmark.²⁴

¹⁹ For a discussion of target outcomes see forthcoming work from the IOPS and OECD.

²⁰ (OECD 2013)

²¹ The World Bank publication (Hinz et al 2010) notes that these benchmarks should consider the following factors: The presence of other sources of retirement income, including the income from public pensions; the age of individuals; the rate of contributions; the target replacement rate and its downside tolerance; a matrix of correlations between labour income and equity returns; the expected density of contributions for different categories of workers; the type of retirement income in the payout phase, in particular the risk tolerance of pensioners in the payout phase (e.g. real fixed annuities, variable annuities, and phase withdrawal); a parameter that reflects the risk aversion of policy makers.

²² (Rudolph et al 2010).

²³ For example, a portfolio of inflation-indexed bonds with a duration that properly reflects the investment horizon of the population of plan participants could be used, but Viceira stresses that this would only deliver a limited pension income. An additional issue is that in practice there is a lack of such long-dated, indexed bonds, not only in developing but also some developed economies, making it difficult to apply this 'replicating' portfolio approach extensively.

²⁴ (Blake et al 2008) and (Impavido et al 2009) also discuss a similar concept of target annuitization funds.

32. As with the target outcome for the pension system, the benchmark portfolio should also be set independently. The government, for example, has the incentive to use pension funds for debt financing, or to support various government social programs with low rates of return. If the benchmark were designed by the government, it is likely that this would result in very low pensions in the future (as a conservative and easy to achieve target would be set) – though the opposite risk, that too demanding goals for private pension funds managers would be established, could also arise. The pension supervisor should not have other duties apart from supervising the industry - otherwise it would not have sufficient distance from investment decisions taken by the pension funds. The industry where made up of commercial providers, has no incentive to align its strategies with the long-term, especially as it generates conflict with short-term returns.
33. The benchmark weights should be determined by experts and adjusted as required after regular reviews. In order to ensure independence in the design of a long-term portfolio benchmark, it should be done so by a high level commission that operates on a permanent basis. This group would take on a similar role to a pension fund Boards of Trustees which operate in trust based pension systems. The members of the commission should represent the long term interests of the contributors in the system, and clear terms of reference should specify their mandate. In order to ensure independence, the members of this high level commission could be appointed by the government, and eventually ratified by the Parliament, but most importantly the members of the high level commission should not have a conflict of interest with the government or the private pensions industry. Based on technical studies and long-term considerations, this group should design long-term benchmark portfolios.
34. Introducing this longer-term focus into pension systems means that short-term volatility may well go up. Ideally the benchmark portfolio should be a lifecycle portfolio, which reduces exposure to risky assets as individuals approach retirement, thereby protection them from sharp downside losses, which they are least able to bear as they have less time to make them up. In addition, academic research²⁵ has shown that life cycle investment strategies are the most efficient strategies from the long term perspective. Properly built life cycle strategies maximize the welfare of individuals, by way of focusing on the long term objectives of the pension funds.²⁶
35. In order to achieve the goal of linking the accumulation and decumulation phase of pension funds, the lifecycle portfolio should be shifted into deferred annuity products as individuals approach retirement age. However, it has to be accepted that these instruments are in reality not available in most markets. Therefore index linked bonds would have to be used (again if available), as these are the financial instrument which best track annuities, which are the financial instrument which will manage the decumulation or pension payout phase.²⁷

²⁵ See (Campbell and Viceira 2002), (Blake et al 2008), (Rudolph et al 2010).

²⁶ In a multifond system different benchmarks with different times horizons would have to be established.

²⁷ It should be noted that this would be for the theoretical benchmark. In reality diversified portfolios are required to prevent skewing the pricing of any asset class.

Figure 3: Optimal Investment Strategy over the Lifecycle

Source: (Blake et al 2014)

36. Over and above lifecycle investing, managing short-term volatility is one of the challenges of the benchmarking approach. Behavioural economics consistently shows that most people dislike losses more than they appreciate gains.²⁸ Other mechanisms will therefore be needed to explain and build confidence in long-term investing approach which benchmarking involves - including national pension awareness and financial education campaigns.²⁹ Some form of investment guarantee may also be introduced – though, as has been discussed, this requires great care as distortions and misaligned incentives often results and these do not come without often considerable cost.³⁰
37. Supervisors could then work this analysis into their overall internal risk assessment via a ‘traffic light’ system. For example a green light would indicate a pension fund with a portfolio structure aligned with the benchmark and a good risk management system.³¹
38. Alternatively, the benchmarks could be applied in a more forceful way, with independent asset managers required to run their portfolios against this independently set benchmark within a given tracking error (also set by the independent commission).³² The passive implementation of the benchmark (based on objective stock and fixed income indexes) would provide managers with a

²⁸ See for example the interesting market research carried out by the National Savings Employment Trust (NEST) in the UK around its launch (NEST 2010). NEST had adopted an innovative lifecycle strategy involving a ‘foundation’ phase in which limited risk is taken to avoid early losses and therefore individuals giving up on savings too soon.

²⁹ For examples see (IOPS 2011), (Atkinson et al 2012), (Antolin and Harrison 2012). Antolin and Fuentes (2012) describe the Chilean experience of how to communicate pension outcome risk.

³⁰ For a discussion of guarantees see (Antolin et al 2011).

³¹ The World Bank publication (Rudolph et al 2010) notes that such a performance measurement approach is broadly consistent with the manner in which the control of investments is exercised in a hybrid DB system, such as in the Netherlands, in which asset allocations are regulated in consideration of the targeted, although not guaranteed, benefit stream

³² See (Rudolph et al 2010).

minimum performance that they might try to improve upon. In the World Bank publication³³, Viceira notes that regulators could limit the level of ‘active bets’ that managers could take by defining (measuring and verifying) maximum tracking errors, just as institutional investors do with the active managers they hire. This would enable the pension system to remain within the overall risk level that is deemed appropriate.

39. For systems where the type of portfolio is left to individual choice, such outcome orientated portfolios could be set as default options (which most members are likely to end up with) and the supervisor could then monitor the suitability of the default fund.

IV. Examples of Use of Benchmark Portfolios

Benchmarks used by Leading Pension Funds

37. The world’s leading institutional investors are increasingly adopting this approach to asset allocation and are utilizing the advantage they have as long-term investors. It should be noted that many of these funds are non-profit organizations and their interests are consequently better aligned with the members of the funds they manage. As a consequence, they focus on output targets rather than maximizing short-term returns – i.e. what level of pension do they wish to pay people and how can they achieve this with the greatest certainty.
38. The examples given do not correspond precisely with individual account-based, DC systems - the Canadian and New Zealand funds, for example, manage national pension reserves and not individual accounts. It should also be noted that the CPPIB and NZSF reference portfolios are not DC funds but rather target (effectively) DB plans. They are not *directly* driven by delivering a target income and do not necessarily use an optimization process. That said their approaches can provide interesting practical examples. In addition, the role of the independent commission outlined above is fulfilled by the trustee boards of these funds.

Canada³⁴

39. The Canada Pension Plan (CPP) is a contributory, earnings-related social insurance program. It forms one of the two major components of Canada's public retirement income system, the other component being Old Age Security (OAS). As of December 2013, the fund’s assets amounted to CAD \$201.5 billion.
40. The fund is managed by the Canada Pension Plan Investment Board (CPPIB), established in 1997 as an organization independent of the government to monitor and invest the assets of the CPP. Independence is enshrined by any change to the CPP Act and the CPPIB Act having to be approved by two-thirds of the provinces with two-thirds of the population. Board members are chosen based on their financial experience and other criteria, and are appointed by the Finance Minister, from a list drawn by a nomination committee.
41. The CPPIB have used a Reference Portfolio since 2006. It serves as a performance benchmark against which the CPP Investment Board’s value-added activities are measured. The Reference

³³ (Rudolph et al 2010).

³⁴ Information taken from CPPIB website and Annual Report – www.cppib.com

Portfolio represents a low-cost strategic alternative to the actual CPP Fund that would earn sufficient returns over the long term to help sustain the current CPP contribution rate of 9.9%.

42. The current composition of the Reference Portfolio benchmark is 10 percent Canadian equities, 55 percent global equities, 30 percent Canadian nominal bonds and 5 percent foreign sovereign bonds. The composition of the actual CPP Fund does differ from the Reference Portfolio. In the actual portfolio there are no specific allocations to asset classes. Instead, in the pursuit of value-added returns the CPPIB make investment choices guided by the underlying risk/return characteristics of individual investments rather than by which asset class they represent.
43. Broad market indexes maintained by organizations such as S&P/Citigroup and Scotia Capital are used to measure the performance of the Reference Portfolio. This provides the Board of Directors, management and CPP stakeholders with an understandable and demanding investment benchmark to evaluate the investment performance of the CPP Investment Board.

Figure 4: CPP Reference Portfolio

Source: CPPIB website

New Zealand³⁵

44. The New Zealand Superannuation Fund invests globally in order to help pre-fund New Zealanders' universal superannuation entitlements. As of September 2013 the fund's assets under management were worth \$23.93 billion.
45. The Fund is governed by a separate Crown entity called the Guardians of New Zealand Superannuation. The entity is overseen by a Board. Its members are appointed by the Governor General on the recommendation of the Minister of Finance. The Minister's recommendation follows nominations from an independent nominating committee. On receiving those nominations the Minister must consult with representatives of other political parties in Parliament before recommending the Governor General appoint a person to the Board. Board members are chosen for their experience, training, and expertise in the management of financial investments.
46. The Fund uses a Reference Portfolio to measure and manage its investments. is a low cost, passive portfolio which can achieve the fund's purpose to maximize returns without undue risk to the

³⁵ Information taken from www.nzsuperfund.co.nz.

Fund as a whole. The fund's 2010 reference portfolio establishes an expected rate of return (before NZ tax) that exceeds the risk-free rate of return – i.e. NZ Treasury bills – by at least 2.5% p.a. over a rolling 20 year period.³⁶ The Reference Portfolio is designed and implemented carefully, requiring input and review from the Board and review from external asset allocation experts.

47. The principles underlying the composition of the portfolio require exposures which are:³⁷

- Low-cost, simple (i.e. listed asset classes) and passive;
- Representative of the investable market;
- Appropriate to the risk profile of the fund;
- Relevant to a New Zealand investor.

Figures 5+6: NZ Super Reference Portfolio

Source: New Zealand Superannuation Fund

³⁶From 'Theory to Practice: Case Study from NZ Superannuation Fund', David Iverson, Head of Asset Allocation Investment Implementation Forum, 29-30 August 2012

³⁷The full 2010 Reference Portfolio Review can be found at: http://www.nzsuperfund.co.nz/files/Reference_Portfolio_Review.pdf

48. The National Employment Savings Trust (NEST) is a qualifying pension scheme established by law in 2011 to support the introduction of automatic enrolment in the UK pension system. The Pensions Act 2008 introduced new duties on employers to provide access to a workplace pension scheme for most workers. Employers now need to enroll most workers into a workplace pension scheme that meets certain standards. Employees will then have the right to opt out if they choose. The difference with other pension providers is that NEST is obliged to accept any employer choosing to enrol its workers at a single price (equivalent to 50bps).
49. NEST is a trust-based occupational pension scheme overseen by a Trustee Corporation (NEST Corporation) which is a not-for-profit entity. It is a non-departmental public body (NDPB) that operates at arm's length from government and is accountable to Parliament through the Department for Work and Pensions (DWP). NDPBs are public organisations but they are not part of the government and the day-to-day decisions they make are generally independent. However, government ministers are ultimately responsible to Parliament for the effectiveness of decisions made by NDPBs.
50. NEST is run by NEST Corporation. NEST Corporation has a Chair and up to 14 Trustee Members who have a number of legal duties – one of which is a duty to act in the interests of scheme members. NEST's Trustee Members set the strategic direction and objectives for the scheme. Trustee Members have been selected for their wide range of experience, skills and pensions industry knowledge. The initial selection of NEST's Trustee Members is made by the Secretary of State for Work and Pensions. This is in line with the practices of the Office of the Commissioner of Public Appointments, the body that scrutinizes public appointments. The choice of future NEST Trustee Members will be made by NEST Corporation. The Member Panel will participate in the recruitment and appointment of NEST's Trustee Members.
51. NEST offers a series of Retirement Date Funds to its members – which they placed in by default (i.e. if they do not choose one of the other NEST fund offerings³⁹) according to the target retirement date of the individual. These are run as lifecycle funds, reducing risk as individuals get closer to retirement.⁴⁰ The target investment return of the funds is inflation +3% (after charges), while maximizing diversification, capturing global growth and minimizing investment shocks.
52. NEST use a reference portfolio to set their strategic asset allocation and monitor the performance of their funds. This is based on range of global indexed funds.

³⁸ www.nestpensions.org.uk

³⁹ These include a lower growth fund, a higher risk fund, a pre-retirement fund, a Sharia fund and an ethical fund.

⁴⁰ See footnote on NEST's foundation phase.

Table 1: UK NEST Building Block Fund Range

Fund	Investment Approach	Benchmark/ Target
Global Equity Fund	Passive	FTSE All World Developed Index
UK Gilts Fund	Passive	FTSE Actuaries All Stocks
UK Index Linked Gilts Fund	Passive	FTSE Actuaries Index Linked Gilts over 5 years
Low-risk Liquidity Fund	Active	7-day LIBID
Diversified Beta Fund	Mostly Passive	UK Risk Free Rate +2%+4%
F&C Stewardship	Active	MSCI World
HSBC Life Amanah Pension Fund	Passive	Dow Jones Islamic Titans 100
Sterling Corporate Bonds	Active	GBP iBoxx
UK Direct Commercial Property	Active	IPD
Global REITS	Passive	FTSE/NAREIT Index

Source: NEST

Regulatory Benchmarks

53. Pension regulators in various countries are also moving towards using a benchmarking approach to monitor and measure the performance of the pension industry as a whole. This approach is being considered by several regulators which oversee DC pension systems managed by competitive private pension funds.

Latin America

54. Various regulators across Latin America have been researching the benchmarking approach. The multifond system in place across much of the region, while an improvement on the ‘blunt’ tool of asset class restrictions, is still designed to protect against short-term volatility rather than working towards a longer-term pension income goal. Likewise, the VaR system in Mexico has proven to introduce short-term distortions into the system and is no longer used.

55. In Chile, the regulator has been working on and modeling the concept of pension risk, analyzing the probability density function of replacement rates.⁴¹ Since 2005 the pension supervisor in

⁴¹ See (Berstein et al 2013).

Chile has included personalized information in the pension statements which affiliates receive, known as the Personalized Pension Projection (PPP). This contains a forecast of the affiliates' pension under various assumptions, including showing the effect of the expected pension from maintaining regular contributions or from postponing retirement.

56. Though this information has been well received and has had an impact (for example on increasing voluntary contributions), the supervisor went one step further in 2012 and started to also include information on pension risk via a pension simulator model. The on-line application feeds in individual's characteristics such as age, gender, level and density of contributions, age of retirement and investment strategy. Focus groups showed the idea of uncertainty was hard for people to grasp and therefore the user friendly simulator was designed to make members aware how to mitigate risk and what actions to take to increase their expected pension outcome.

Figure 8+ 9: Example of Pension Simulator Output

Source: (Antolin and Fuentes 2012)⁴²

⁴² Tool available via www.spensiones.cl

Lithuania

57. Lithuania is one country which has partially adopted a benchmarking approach. The regulatory authority has introduced a life-cycle benchmark for pension fund managers. Benchmarks are compulsory for second pillar funds, but are chosen voluntarily within the fund by a methodology agreed with the regulatory body. These are based on a target replacement rate, and parameters relating to volatility, risk free and market rates, correlations etc.
58. Lithuania has adopted a liberal investment regulation strategy. Pension funds are managed by licensed asset management companies, which are allowed to manage other funds as well. The investment regulation requires only a minimum level of diversification of the instruments under management. There are no restrictions on the number of portfolios that each of the asset management companies that manage pension funds are required to offer. While some companies offer two, others offer up to five. The number of funds and the investment strategy of these funds have been mostly guided by the capacity of the sales force to bring a minimum number of contributors to these funds. Each fund is guided by its own investment guidelines, which can change without much notice.
59. Pension funds are required to make available to the supervisor the benchmark portfolio that they are expecting to follow. However, regulation does not impose explicit requirements for following such a benchmark and there are no penalties for diverting from it. In the absence of a clear mandate, it can be argued that the supervisory agency has not been able to do anything meaningful with the benchmarks, except but making them available on the webpage.
60. Under these circumstances, contributors faced a web of different portfolio strategies, with unknown risk profiles, and without the tools to compare them. The association of asset managers made an effort to group the strategies of the pension funds into three broad categories, but given the diversity of investments, it is possible to identify a fourth group within the alternatives being offered.
61. The Lithuanian experience provides a case where the concept of using benchmarks has been embraced by the pension industry and the regulator. However, without sufficient central guidance and standardization, pension fund members are simply faced with making choices which, though expressed in an arguable better fashion, are not easy for them to understand.

Figures 6+ 7: Lithuanian Pension Fund Industry Benchmark Approach

Parameters

Let's fix this set of parameters :

- ❖ Replacement rate – 60 %
- ❖ Risk premium – 2 %.
- ❖ Risk-free rate – 2 %.
- ❖ Volatility of risky return – 17 %
- ❖ Correlation between income and stock return shocks – 0.2
- ❖ Risk aversion coefficient – 7
- ❖ Contribution rate – 6 %
- ❖ Expected life-span in retirement – 16 years
- ❖ Discount factor – 2 %
- ❖ Income profile → age-dependence + 2 % economic growth

Source: Ruzgys⁴³

V. Lessons Learned

62. Both academic research and leading practical examples from the pension fund industry globally have shown how DC pension funds can and should be aligned to the ultimate goal of any pension system, which is to ensure that members receive an adequate pension income when they retire. In order to incentive this delivery of long-term pension incomes, rather than managing short-term

⁴³ Slides taken from 'Pension fund industry in Lithuania', Šarūnas Ruzgys, President of the Lithuanian investment and pension funds' Association, CEO in DNB asset management, UAB
http://www.ebrd.com/downloads/news/Pension_fund_industry_in_Lithuania.pdf

volatility, outcomes need to be identified, target returns derived, and benchmark portfolios with strategic asset allocations best designed to achieving these returns devised.

63. Building benchmarks is a well-established practice, based on financial theory, with advanced pension markets and countries already moving in this direction. The difficulty comes in deciding upon the assumptions which go into the exercise. Defining the return on assets is not trivial. The composition of the resulting Benchmark depends directly on how the returns are modeled and it is likely that the "long term target" is never achieved if the returns are poorly specified or were poorly predicted. Also, past returns are not necessarily a good predictor of future returns and longer-term prediction increases uncertainty and thus increases the margin of error. In addition, predicted wage profiles are another key element of the model, as are the number and timing of the contributions (i.e. the contribution profile to the system), which is subject to the member's condition in the labor market, have a significant impact in the pension savings outcomes. Using an 'average' member to generate a single benchmark risks many members of the population who do not fit this profile not reaching the targeted return (e.g. women with interrupted career histories).
64. In addition to these theoretical modeling challenges, there may also be practical ones. While moving towards a benchmarking approach requires portfolio optimization experience has shown that this may not be possible, particularly when funded pension systems are first introduced and the governance within the system may be weak. Pension fund members and regulators alike may require more security against short-term volatility until confidence in the system has been built, meaning that investment class restrictions will remain in place – and indeed some always should.⁴⁴ The key is find the right blend of investment regulation with suitable risk controls and incentives in mind.
65. Likewise political pressure for domestic investment may prevent true international diversification, despite the lack of liquid, domestic investment opportunities. Limiting overseas investment may be justified on balance of payment considerations. The transition costs⁴⁵ of moving to these systems may mean that a higher percentage of assets than is 'optimal' may need to be invested in domestic government bonds. However, it is still useful and important for regulators and industry participants alike to embrace the philosophy of the approach, and to commit to moving in this direction as conditions allow.
66. Shifting to this new approach is challenging for both in both philosophical and practical terms. The examples of funds and regulators around the world which have undertaken this exercise have revealed some key lessons including:
- given lessons from behavioral economics, the increase in short-term volatility which will result from adopting long-term targets will have to be carefully managed and clearly explained;
 - combining investment restrictions and a benchmarking approach is possible, but the former may dominate and therefore the exercise is theoretical rather than practical;
 - in addition, domestic markets need to be sufficiently developed to derive indexes with robust performance and correlation data, which times time and shows the importance of

⁴⁴ See 'OECD Guidelines on Pension Fund Asset Management' <http://www.oecd.org/daf/fin/private-pensions/36316399.pdf>

⁴⁵ These arise when government have to continuing paying from the old pension system as pension liabilities arise, while also contribution to the new system to cover future pension payments.

instituting a capital market development plan at the same time as introducing pension reforms;

- other lessons show the importance of involving the fund management industry in the process but also giving the regulator sufficient powers and having some centralization of the benchmarks;
- lessons from leading international pension funds show the importance of governance and constituting an independent panel to establish pension income targets, risk tolerances and to give the benchmark credibility.

67. Yet despite these challenges, pension fund regulators are coming to embrace this approach and have to a large extent accepted the philosophy behind a benchmark rationale. Much work has been done to measure retirement outcomes from DC pension systems, and indeed to communicate them. As Antolin and Fuentes (2012) point out: *“DC pension plans will depend on choices members and regulators will make about how much to contribute, how much to invest, when to begin withdrawing a pension and how pension benefits should be withdrawn... Benefits from DC pension plans are inherently uncertain.....Regulators can help members (manage this task) by communicating on these choices and their implications on a regular basis, as well as projections showing their likely future pensions.”*

68. However, supervisors are still struggling with how to regulate using this approach – not least due to court cases with pension funds challenging supervisory intervention in their portfolio construction. Challenges and questions still remain – not least the following:

- What should the targets for DC funds be?
- Can asset class restrictions and benchmarking approaches best be combined?
- Can benchmarking work in underdeveloped capital markets (is it possible to overcome home bias)?
- Is it possible to get over behavioral bias towards short-term losses (desire for guarantees)?
- Is the proposal for an independent committee feasible?
- How much investment independence should fund managers be allowed?
- Will the approach lead to too much herding by industry?
- Does this lead to a monopolistic provider?

37. This paper does not pretend to have all the implementation answers, but the adoption of the philosophy can go a long way to helping ensure that the suite of regulatory measures is better designed towards achieving secure, adequate income in retirement, which is the ultimate goal of all our pension systems.

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