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Risk Management for Public Pension Funds: Still Trying to Not Waste the Crisis

Northfield Information Services Commentary

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Abstract

With the additional stresses created by the financial crises of recent years, the collective economic soundness of the thousands of US public pension funds has come under increasing scrutiny. Many of the concerns focus on issues of risk management, and the extent to which failures in risk management could lead to broad systemic problems across the public pension landscape. In this paper, we examine both the conceptual basis of risk management for pension funds, and the current state of common practice. We find that the current state of practice is routinely focused on the wrong areas, giving priority to those aspects of the problem that are most readily addressed, rather than those issues of greatest economic importance.

Introduction and Some Concepts

During the market crisis of 2008 and early 2009, we observed a marked increase in interest in risk management among public pension funds. The heightened attention initially seemed very open-ended to us. Shell-shocked trustees and staff paused, and effectively said we have to rethink *everything*, especially how we approach risk management.

Once the markets recovered in the spring of 2009, however, the urgency eased, and the attention on risk management seemed to recede to a concern with procedures and documentation. The sense of *responsibility for risk management* was demoted to the issue of *accountability for risk management*. This paper is a call for reclaiming the openness we observed during the crisis. We think there is still a chance to not waste it.

Rethinking by its nature starts with first principles, so we begin by questioning the definitions risk and risk management. Then we delineate the risks faced by public pension funds, assess their relative magnitudes, and discuss how they might be managed. We conclude that the biggest risks faced by public funds are associated with

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unwillingness on the part of the public fund community to seriously consider the economic critique of GASB accounting.

What is risk management?

What is risk?

Risk is the possibility of something undesirable happening. Risk is often associated with courses of action we consider. The risk of a given course of action is the possibility that, if we choose that action, we fail to achieve the objectives of that action.

When speaking broadly about risk, i.e. not just in an investment context, one sometimes knows the probabilities of bad outcomes – for example, if one is playing roulette. When assessing the return prospects of an investment, an investment portfolio, or an investment strategy, however, one does not know the probability distribution of future returns.¹

Is risk measurable?

It is not possible to precisely measure the risk of a future event whose probability is unknown. That said, one can attempt to *assess* risk and can form reasonable views as to the risk of an investment or course of action. In some settings it is possible to say things like “choice A is riskier than choice B” and even “choice A is a *lot* riskier than choice B.” Sometimes we even put numbers on such comparisons and say things like “choice A is six times riskier than choice B.” But we must always be mindful that such statements involve assuming a model and estimating the parameters of the model, and both of these things can only be done imperfectly. Investment risk management mostly involves settings where identifying what risks are present is hard, where assessing the risk of different possible outcomes can only be done roughly, and where it isn’t clear how one aggregates multiple possible outcomes and their likelihoods to a numeric risk measure. This makes risk management just as important as risk assessment.

What is risk management?

Risk management is the process of identifying what can go wrong with contemplated and chosen courses of action, and taking steps to keep the likelihood and magnitude of unacceptable outcomes within tolerable limits. Much of risk management can occur without attempting the impossible task of measuring risks precisely. Numeric measurement certainly helps to the extent it is possible, but the crux of risk management is (1) awareness of the possibility of bad outcomes, (2) an ability to see the potential consequences of one’s actions, and (3) well-functioning decision processes. The ability of investors (and their agents, such as consultants and asset managers) to control unfavorable investment outcomes within acceptable limits while considering the integration of assets and liabilities is what risk assessment and management is all about.

¹ Knight (1921) uses the term “risk” to refer to situations in which probability distributions are known and “uncertainty” to refer to situations when probability distributions are not known. While the distinction between probability distributions being known or not is very useful, and in some contexts these notions are still labeled risk and uncertainty, respectively, common usage in investment management is to use the term risk even though probability distributions are not known.

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What is good risk management?

It is beyond the scope of this paper to comprehensively address principles of good risk management. Instead we wish to highlight three principles of good risk management which we believe are absent from most public pension funds in the United States:

1. Pay the most attention to the biggest risks.
2. Be mindful of the tendency for organizations to suppress bad news, and the potential for this tendency undermine decision makers focusing on the biggest risks.
3. Listen to informed criticism.

In the Appendix we draw attention to several specific aspects of pension plan risk management where we believe that common practices and beliefs are routinely inconsistent with the basic principles of sound financial management.

The Risks of Public Pension Funds and Their Relative Magnitude

Pension funds exist to secure the pension promises made by employers to employees. Risk to a pension fund is the possibility that plan participants do not receive what is promised them. There are a variety of scenarios which could lead to this, but they all come down to the pension fund not having enough money and the plan sponsor being unwilling or unable to make up the difference.

While there is only one overarching risk for pension funds, there are many factors potentially contributing to that risk, and so we often speak of the *risks* of pension funds, such as inadequate funding, poor investment returns, and poor decision making processes. These factors interact with each other – i.e. poor decision making leads to poor investment returns, which leads to underfunding which leads to yet more poor decision making, etc. – and therefore can't be fully separated from each other. Nonetheless they can be delineated, and their relative contribution to overall risk can be assessed, if not precisely measured.

The relative magnitude of pension risks

In our experience most risk management programs for public pension funds focus on micro risks, i.e. the risk of a guideline violation or of an active manager underperforming their benchmark. These risks would not normally be more than a few percentage points of an individual manager's portfolio, and not more than basis points of the total portfolio. Of course, a difference of basis points of a multi-billion dollar portfolio is still a lot of money, but it is very small compared to other risks that, it appears to us, public fund sponsors largely ignore.

If we accept the premise that the overarching risk of a pension fund is that possibility that people who have been promised pensions do not receive all they have been promised, then the biggest risk is that the fund doesn't have enough money to pay the pensions and the plan sponsor is unable or unwilling to backstop the fund. How big is this risk?

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The risk of a public pension fund defaulting on its promises doesn't need to be large. If the plan sponsor were to set aside enough money to secure the pension promises and invest that money prudently, then the odds of default would be minimal. However, accounting and funding rules for public pension funds create semantic and conceptual confusion about what full funding means, and this creates an enormous risk that public pension funds do not set aside enough to secure their liabilities. The extent to which this will lead to defaults on pension promises remains to be seen, but the risk is orders of magnitude larger than the risk associated with guideline violations or active management.

What does "full funding" mean?

The common sense definition of "full funding" is enough funding that accrued pension obligations can be fulfilled without additional contributions from the sponsor.² If a plan does not have this minimal amount of funding, then fulfillment of its obligations is dependent on the creditworthiness of the sponsor. And if the payment of already accrued obligations requires the possible backstop of future contributions from the sponsor, then it seems straightforward to say that those accrued obligations are not fully funded.³

Unfortunately, current GASB accounting rules⁴ confuse the meaning of fully funded. To illustrate let us consider the aggregate of state and local funds as if they were one fund. Using values from Munnell (2012), the aggregate of state and local funds, as of the end of 2010, had \$5.2 trillion in liabilities if these liabilities were measured using standard economic valuation methods.⁵ This number – \$5.2 trillion – is also a good proxy for the amount it would take to fully fund the liabilities as defined above. However, because GASB accounting and funding rules allow the liability measure to be reduced by the expected risk premium on risky assets, GASB rules call for funding of \$3.4 trillion.⁶ That is, GASB rules call for funding the liabilities at 65% (3.4/5.2). Whatever one thinks of a plan to fund liabilities at 65%, it doesn't need to create confusion.

If GASB were to simply say "we call for a funding target of 65% because we believe the 35% difference can be made up by successful investing in risky assets" there would be no confusion. One might disagree with wisdom of attempting to make up for underfunding by investing in risky assets, but there would be no confusion that this is what is going on. Another consequence of reliance on returns from risky assets is that there is no unanimity as to what such returns are likely to be. As such, pension funds *can reduce their perceived liabilities simply by being optimistic*.

² Of course, in a fully funded active plan, future contributions will be necessary to secure *future* commitments.

³ As a matter of semantics, one might think of the plan sponsor's promise to backstop the plan as an asset, in which case one could say plans are always fully funded, but some simply have an undiversified portfolio – a large investment in the creditworthiness of the plan sponsor. See diBartolomeo (2012) for more on this.

⁴ GASB is in transition between old pension liability valuation rules (#25 and #27) to new rules (#67 and #68). The new rules are even more confused than the old but essentially suffer from the same problems, plus some. For the sake of simplicity the discussion that follows is based on the rules in effect in 2010, but our conclusions do not depend on using the old rules. See Minahan (2013) for an explanation of the new rules and problems associated with them.

⁵ Munnell's estimate of the economic value of liabilities is conservative. Joshua Rauh (2014) estimates that current state and local liabilities have a market value of over \$7 trillion.

⁶ This example is developed more fully in Minahan (2013).

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State and local pensions had \$2.6 trillion in assets at the end of 2010, for a “common sense” funded ratio of 50% (2.6/5.2). However, current conventions for quoting funded ratios treat the \$3.4 trillion as if it represents the 100% mark for full funding, and so would (misleadingly) consider the aggregated fund 76% funded (2.6/3.4).

Let us attempt to be clear: A plan which calls for funding \$5.2 trillion in liabilities with \$3.4 trillion in assets is a plan to fund the liabilities at 65% (3.4/5.2). If the fund has assets which are 76% of *plan* (2.6/3.4), the funded ratio is 76% of 65% or 50% (2.6/5.2). This is quite straightforward and ought to be noncontroversial. Unfortunately, common usage of the term “funded ratio”, enabled by GASB accounting, confuses *funding relative to plan* with *funding relative to liabilities*.

Numerous economists have sought to clarify the record on these issues.⁷ Yet the plan sponsor community, the government accounting community, and most of the actuarial community has rejected these attempts to shed light on this problem.⁸

Why Plan Sponsors Should Listen to Economists

Good risk management welcomes multiple perspectives on important problems. It is especially valuable for pension professionals and decision makers to consider the perspective of other professionals who have given a lot of thought to the issue at hand, particularly if that thought has been vetted and refined over years of debate and research and has unfolded on an independent track from the primary frame of reference of the decision maker. Economists offer such a perspective to plan sponsors and actuaries.

From the perspective of economics, standard actuarial methods of liability valuation and funding suffer from numerous conceptual errors which in turn create significant risk management problems.⁹ While it is understandably difficult for plan sponsors, actuaries, and government accountants to accept criticism from “outsiders,” and it may appear that economists “have an agenda,” economists are doing nothing other than applying the principles of their field to a topic they believe they know well. Even if economists fail to make their case diplomatically, a healthy response from plan sponsors would seek to learn from economists rather than dismiss them as ill-informed and politically motivated.¹⁰

Why Don't Plan Sponsors Listen to Economists?

So why do actuaries and plan sponsors not take advantage of the economics point of view as an independent frame of reference? One possible explanation is the tendency of groups and organizations, when faced with information or a point of view that challenges their narrative about themselves, to suppress that information or

⁷ Bader and Gold (2003), Waring (2011), Novy-Marx and Rauh (2009), Gold and Latter (2008), for example)

⁸ The backlash against economists is well documented. See for example Findlay (2008), Joint Letter (2008), McCrory and Battel (2003) and Brainard (2011).

⁹ A partial list of these conceptual misconceptions is contained in the Appendix.

¹⁰ See the references in footnote 8 for examples of plans sponsors and actuaries dismissing economists as ill-informed and politically motivated.

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perspective.¹¹ Such behavior is well documented by social psychologists, as is the tendency of such behavior to result in excessive risk taking. This was recently illustrated extensively by Marc Gerstein in *Flirting with Disaster* (2008).

Gerstein analyzed numerous and seeming disparate disasters¹² and found a common pattern: Someone saw the disaster coming but was ignored by those who might have done something to avert the disaster. He documents that strong organization forces serve to shut down dissent, to suppress bad news, and to demonize those who draw attention to bad news. He offers four risk management recommendations based on his analysis of these disasters:

- *Understand the risks you face.* Think through what can go wrong with any course of action under consideration.
- *Avoid being in denial.* Be aware of the tendency of groups to suppress “deviant” points of view, and balance this tendency by encouraging the expression of alternative points of view.
- *Pay attention to weak signals and early warnings.* When a mistake would be disastrous, it is important to pay attention to all risks that can be identified, even those that seem remote.
- *Do not subordinate the chance to avoid disaster to other considerations.*

Let’s discuss the relevance of Gerstein’s recommendations to public pension funds and the extent to which they are followed:

1. Understand the risks you face. We are sure some plan sponsors know only too well the risks faced by the pension funds for which they are responsible. Yet it also appears that many plan sponsors accept actuarial assessments of their funded status at face value, seemingly without consideration that economists believe that these assessments are overly optimistic. The actuarial (or GASB) model, like any model, is a *representation* of reality, and is therefore subject to “model risk” – the possibility that reality is different from the model in some important way. A good risk management process recognizes this possibility, and welcomes out-of-model thinking as a reality check, even when (perhaps *especially* when?) that thinking comes from outsiders such as economists. Yet, plan sponsors seem to reject economic thinking out of hand.
2. Avoid being in denial. Good risk management calls for plan sponsors to explore and evaluate economists’ claims that (1) their plans are much less funded than official statistics show, and (2) the official processes for valuing liabilities are seriously flawed. These are big issues. Summarily dismissing them feeds at least a perception of denial, as does the near-unanimity of the plan sponsor views found on the website of the National Association of State Retirement Administrators (www.nasra.org.)

¹¹ As long time investment industry figure Herb Blank quipped in a presentation to Hartford QWAFEFW, “When you challenge the status quo, the status quo fights back.”

¹² Chernobyl, Hurricane Katrina, Vioxx, Enron, Arthur Andersen, wars, space shuttles blowing up, and others.

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3. Pay attention to weak signals and early warnings. If you believe what economists say, then their viewpoint is a *strong* signal that public pension fund liabilities are being undervalued. But many plan sponsors don't yet seem to be convinced of the economics perspective, so to them, economists' warnings are *weak* signals. Weak signals are easy to ignore, especially if they have gone unheeded in the past without apparent consequences. However, the stakes are too big here not to take Gerstein's advice and seriously consider the *possibility* that economists are on to something. Yet, economists continue to be dismissed by plan sponsors.
4. Do not subordinate the chance to avoid disaster to other considerations. To take a page from Jeremy Grantham's playbook,¹³ is it possible that some plan sponsors, actuaries, and investment advisors are so influenced by career risk (perhaps not consciously) that they can't even acknowledge, never mind act upon, a point of view that challenges the status quo? Moreover, could there be a tendency for plan sponsors and actuaries to close professional ranks in the face of what appears to be an invasion of their turf by economists? In short, is the chance to avoid disaster being subordinated to agency problems and professional territoriality? While not wishing to denigrate any individual, we do think these questions warrant more discussion. Don't our obligations to our ultimate clients – participants in pension funds – require it?

It should be noted that seemingly mundane incidents involving the sort of warnings that Gerstein presents have already been observed in the public pension arena. For example, there has been litigation over staff dismissals at public pension funds with respect to public disclosure of alleged breaches of pension plan risk policies.¹⁴

In sum, good risk management calls for plan sponsors and actuaries to *listen* to economists and others who challenge the status quo, and to be open to learning from what they hear.

What is the Responsibility of an Investment Advisor?

In one sense, investment advisors¹⁵ are bystanders with respect to the debate about liability valuation, since they don't "own" the issue of measuring liabilities or funded status. Despite this, we believe there are two reasons investment advisors to pension funds have a professional responsibility to promote the measurement of an economic value of liabilities:

1. Investment advisors who give total fund advice need to know a client's funded status in order to execute faithfully their duties as investment advisors. A client's funded status is an important component of their overall financial picture. To give total portfolio advice without knowing a client's funded status would be, under ordinary circumstances, professionally irresponsible. Yet, that is what investment advisors are forced to do when they do not have access to economically meaningful measures of the liabilities and the standard adjustments

¹³ Jeremy Grantham, one of the founders of investment management firm GMO, is well known for interpreting behaviors in the investment management industry in terms of career risk.

¹⁴ See Baker versus San Diego County Employees Retirement Association (2012)

¹⁵ By "investment advisor" we mean one who counsels a plan sponsor on overall investment strategy and management. We mostly have in mind asset-side pension consultants when this term is used, but it can also include internal investment staff of the plan sponsor, especially chief investment officers.

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advisors would make to render the actuaries' numbers economically meaningful are considered taboo to talk about, never mind act upon. Breaking this impasse requires that advisors articulate to their clients and their clients' actuaries why the financial economics perspective is useful so that such advisors become free to give advice that is fully informed of clients' circumstances.

2. Investment advisors who act as investment counselors have a responsibility to foster the client's overall financial health. Financial health involves both numbers and behavior. On the numbers side, financial health is about whether a client has adequate assets and income to meet liabilities and possibly other objectives. On the behavior side, financial health is about a client's decision-making processes: is the client decision-making body a well-functioning group or does it exhibit dysfunctional behaviors that sacrifice the quality of its financial decisions? An investment counselor's responsibilities include making assessments of the client's behavioral health and attempting to foster improved decision-making processes if appropriate. This may include drawing to a client's attention circumstances that the counselor finds detrimental to the client's financial health and helping the client deal with such issues in a more constructive way. If clients are in denial about the value of their liabilities and about the ability of financial economics to shed light on those liabilities, investment advisors have a responsibility to foster improved client functioning with respect to this issue.

Investment advisors face a dilemma, however, that may give them pause about acknowledging the legitimacy of the economics perspective to clients. Most plan sponsors want to minimize near-term contributions, and as noted earlier, this makes them predisposed to points of view that justify higher discount rates. Furthermore, investment committees and staffs consider their mandate to be to earn, at least, the discount rate assumed by actuaries. The social pressure to embrace overly optimistic return expectations can be enormous. Given this context, plan sponsors don't want to hear the news that they are less well funded than previously believed and may blame the messenger.

Nonetheless, an investment advisor has a professional responsibility to help plan sponsors understand these issues. This may require telling plan sponsors things they don't want to hear. If investment advisors don't do this, they become enablers of their clients' denial and of the poor decisions that may result from that denial.

Conclusion

Successful risk management of public pension plans requires a clear understanding of the economics of pension plans. Unfortunately, common practice across the nation is to obfuscate clear economic understanding and risk assessment through opaque and misleading accounting standards, and instead focus the attention of plan trustees on other aspects of risk (e.g. an asset manager underperforming a benchmark) which are more easily described but of far lesser actual importance.

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Appendix: Common Misunderstandings Contributing to Public Pension Risk

1. *Failure to distinguish between valuation and funding.*

Using an expected return on assets assumption as a discount rate has a certain sensibility from a funding perspective. Specifically, discounting liabilities at the expected return on assets and using the resulting present value as a funding target will generate a funding plan which has an equal chance of being too much or too little, and a good chance of being right on average over the long-term. This is not necessarily a bad way to approach funding, if one is confident that the plan sponsor is in a position to make up the difference if returns are insufficient for this strategy to work.

However, people seem to confuse funding-related present values with the present values that are used in a valuation context, and they aren't necessarily the same thing. The principles of valuation are very clear that low-risk pensions should be valued using a low-risk discount rate. This means that a funding target calculated with an expected return on a portfolio which holds risky assets will necessarily be lower than the value of the liabilities. The difference is the value of the plan sponsor guarantee to make up the difference if the risk investment strategy fails to generate its expected returns. This brings us to the second conceptual error.

2. *Failure to recognize that guarantees have definable economic value.*

Let us illustrate with a numerical example. Suppose a plan sponsor has committed to a particular set of pension liabilities which economists' value at \$10 billion based on a low-risk discount rate and which GASB rules value at \$6 billion using the expected return on assets as the discount rate. While some critics of the economics perspective are bothered by the "inconsistency" of the funding target and the valuation of liabilities being different, there is no inconsistency. The \$4 billion difference is the value of the plan sponsor guarantee to make good on the pensions even if assets turn out to be insufficient.

Once we recognize that financial guarantees have definable value, we must also recognize that there are risks associated with the ability of guarantors to pay. The funding, asset allocation, and risk management policies of the plan must mitigate the potential for poor investment performance to coincide with economic weakness of the sponsor. Consider a pension plan operating in a geographic area where the energy sector of the economy is the dominant source of employment (and public tax revenues). It should be easily recognized that large investments of pension plan asset in the energy sector would be unwise. Poor economic performance in the energy sector would expose the plan to the need to call upon financial resources from the guaranteeing plan sponsor, at the precise time when that guarantor is least able to allocate such funding.

3. *Failure to appreciate role financial analysis can play in sound decision making*

Financial analysts often run into situations where accounting measures don't capture a clear picture of the economics one is analyzing. Indeed, starting with imperfect data and attempting to extract useful information from it is, in large part, what financial analysis is all about. So, in this example discussed above, if the

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accounting rules call for liabilities which are in fact worth \$10 billion to be valued at \$6 billion for reporting purposes, good financial analysis would call for “grossing up” the \$6 billion to \$10 billion as a data-cleaning exercise before starting a financial analysis which takes the value of the liabilities as an input (e.g. doing the analysis for a bond credit rating). This is totally straightforward and a normal part of what financial analysis does, yet we have never seen a plan sponsor correct GASB valuation numbers before conducting analysis.

4. *Semantic confusion over what “full funding” means.*

As discussed in the main body of the paper, the common sense definition of full funding is enough funding so that the payment of pensions is not dependent on the plan sponsor’s creditworthiness. If one accepts this definition, the 100% funding mark is approximately the same as the economic value of the liabilities.¹⁶

However, GASB accounting creates confusion by treating the funding target rather than the amount necessary to secure the liabilities as the 100% mark. In the example cited above, if the pension has liabilities worth \$10 billion, a funding target of \$6 billion, and assets of \$6 billion, common sense suggests this fund is 60% funded, yet GASB rules suggest it is 100% funded.

5. *Failure to account for opportunity costs*

Economic valuation is based on the concept of opportunity cost and the reality of scarce resources. A pension is a type of annuity. The financial capacity of governments to write annuities is a valuable asset, but not an unlimited one. Using this capacity to compensate public employees precludes using this capacity for other purposes. Even if the plan sponsor’s cost of writing the annuities is below market (as may appear to be the case if liabilities are discounted at the expected return on assets), pensions should be valued at market because of the opportunity cost of not using this valuable capacity to write annuities for other purposes. For example, a state plan sponsor might offer discounted annuities to residents of the state, or sell annuities to the public at market and use the profits to defray the cost of running the government.

Providing pensions as part of a government employment package is financially equivalent to providing any other valuable benefit to public employees. Suppose, for example, that the government were to provide housing to public employees, and further suppose that the government’s cost of that housing was below market. How should the right to live in government housing be valued? Despite the below-market cost, the right to live in the housing should be valued at market for two reasons: 1) the government forgoes the market rent that might have been collected; 2) the employee is relieved of the need to pay a market rent. The same principles apply to pensions. (We should be clear, however, that we don’t mean to suggest that the government can indeed provide pensions at a cost below market. We are merely saying that even if one believes that the government cost of pensions is below market, the concept of opportunity cost suggests that those pensions should still be valued at market.)

¹⁶ We say “approximately” the same because if assets are invested with an asset-liability mismatch, securing the pensions may require funding larger than the economic value of liabilities.

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6. *Belief that accounting is reality; belief that economics is “just accounting”*

Consider the example of liability-driven investing. When we talk about LDI with our fellow economists, we take it as given that the accounting rules for valuing pension liabilities are largely irrelevant to assessing the merits of LDI. We have all been trained to have a keen eye for the potential of “accounting illusion” – situations where accounting fails to adequately reflect the economics one is analyzing. In such situations our professional conditioning calls for decisions to be based on the best assessment one can make of the economics, and not on distortions introduced by poor measures of those economics. An implication of this perspective is that the attractiveness of LDI does not hinge on its accounting treatment. Accounting may make any benefit of LDI more or less transparent, but any benefit that exists is still there even when the accounting treatment masks that benefit. The fact that some plan sponsor types (public and Taft-Hartley in the US) do not mark liabilities to market has little to no bearing on the potential benefits of LDI for those plans, in an economist's view.¹⁷

Sometimes when we attempt to explain the economics perspective to plan sponsors they respond by saying that the perspective doesn't apply to them because of the specific accounting and/or funding rules to which they are subject. For example, while making a presentation to a Taft-Hartley board of trustees, one of us included an analysis of the fund from the economic perspective. This was shortly after the Pension Protection Act (PPA) went into effect, and the analysis being from the economic perspective, was not the same as would be done under the PPA rules. One of the trustees reacted by saying, “This is completely irrelevant for us. We live under the PPA whether we like it or not. We can't make up our own rules just because we don't like the law.” This trustee seemed to fail to understand that whatever the accounting and funding requirements, from a managerial perspective plan sponsors are allowed to use whatever information and analysis helps them to best understand the *economic reality* of the decisions they are considering.

7. *Belief that public entities are exempt from the principles of economics; related belief that the economic value of assets and liabilities can't be determined if they aren't traded.*

There is some merit to the idea that an object can't have a price if it isn't traded. Economists are fully aware of this, and can perhaps be faulted for not being sufficiently clear that when they say “market value of liabilities” (“MVL”) this is shorthand for “an estimate of what the liabilities would trade for if they were to trade.” Because MVL involves estimation, there is never one unambiguous value. Still, one can bring to bear the same appraisal process one brings to bear on any infrequently traded asset or liability. The problem is not unlike appraising a home: the specific home being appraised may not have traded in many years, but one can still estimate its market value by looking at recent trades for similar homes. And this estimate, while numerically imprecise, is well-defined conceptually. Similarly, pensions are promised cash flows, and there is a market for promised cash flows. Pension liabilities can be valued by looking at comparables just like houses can be.

¹⁷ This discussion of LDI and accounting is taken from Minahan (2008).

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A cornerstone of economic analysis is the idea that “like things have like prices.” This is sometimes called the “law of one price.” One of the objections economists have to the actuarial perspective is that it violates this law – that is, the actuarial perspective implies that two identical streams of cash flows can have very different values simply because of the nature of the sponsoring organization. In responding to economists’ objections, some actuaries¹⁸ claim that the law of one price does not apply to pensions because they are not tradable. They note that the law of one price requires that any price discrepancies be able to be resolved through arbitrage transactions. In a very narrow technical sense this claim is correct: if pensions cannot be arbitrated then two identical pensions can indeed have different prices. But they can’t be *very* different, just as two nearly identical houses in the same neighborhood are unlikely to sell for radically different prices. So for all practical purposes, the law of one price is applicable: two nearly identical sets of pension liabilities, one owed by a corporation and one owed by a government, *should* have more or less the same value.

8. *Belief that a long-term perspective justifies ignoring risk*

Many investment trustees profess that since pension plans are long term investors, they really don’t need to worry about risk, as periods of poor investment performance will eventually “average out” with periods of better investment performance. This view is unjustifiable on two grounds. The first is that in the long run, most of the wealth accumulated by a plan arises from the compounding of investment returns. The process of compounding is inhibited by period to period variations in returns. For example, if a plan produced 10% per annum returns every year, it would achieve a particular value in 20 years. If the same plan produced 30% return in half the years, and -10% in the other half of the years, the average annual return would still be 10%, but the accumulation of wealth would be equivalent to that from only an 8% fixed annual return.

Being a long term investor is also insufficient to mitigate risk because large magnitude events do occur from time to time in financial markets that have a profound and long lasting impact. Consider that US stock market levels as measured by the Dow Jones Average did not recover from pre-1929 crash levels for nearly twenty-five years. For some financial markets such as the pre-1917 Russian stock and bond markets, the *permanent loss of capital value was 100%*.

9. *Using incorrect or incomplete metrics for investment risk*

Many public pension plans are extensive investors in illiquid assets such as real estate, private equity, and timber land. It is commonly assumed that since the volatility in the value of these assets cannot be easily observed (we can look up stock prices in the daily newspaper) it is safe to assume that there is no volatility. Implicitly this also means that the values of these assets are uncorrelated to other financial assets. Clearly, the value of these assets is changing from time to time even if we cannot observe it. Sound risk management requires recognition of this fact.

¹⁸ See Moore (2008) or Mindlin (2008), for example.

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