

# Integrating Goals, Structure, and Decision-Making at Canada Pension Plan Investment Board

Donald M. Raymond

*Don Raymond is Senior Vice-President, Public Market Investments at Canada Pension Plan Investment Board based in Toronto, Canada.*

*In April 2006, the Canada Pension Plan Investment Board began implementing an explicit value-added investment strategy. It involved developing a new risk/return accountability framework that was designed to align investment decision-making with the overall strategy and support a rapid build-up of active investment capabilities. This article provides an overview of the key strategic choices made by the Board of Directors and senior management team and describes the supporting organizational design and accountability framework. The article concludes with a description of how the compensation system aligns incentives with the goals of the organization.*

*Keywords: Compensation System, Organization Design, Pension Fund, Pension Strategy, Reference Portfolio.*

## The Early Years

### The Canada Pension Plan Investment Board

(CPP Investment Board) is a professional investment management organization that invests the funds that are not immediately required by the Canada Pension Plan (CPP) to pay current benefits on behalf of seventeen million Canadian contributors and beneficiaries. Its mission is to contribute to the long-term financial strength of the CPP and help sustain the pensions of CPP participants by investing CPP assets and maximizing returns without undue risk of loss.<sup>1</sup>

In January 2005, a new Chief Executive Officer joined CPP Investment Board and five months later, the Canadian federal budget repealed the Foreign Property Rule (FPR), which opened up a new world of investment opportunities.<sup>2</sup> It was clear that a fresh look at the CPP Investment Board strategy was warranted. Starting from the first principles articulated in the objects of the *CPP Investment Board Act*<sup>3</sup>, the Board and senior management team spent the fall of 2005 developing a new strategy. As part of the strategy development process, the Board required management to design, adopt, and implement a risk/return accountability framework for measuring success.

To put the new strategy in context, we will briefly summarize the strategy adopted by CPP Investment Board in its early years. When CPP Investment Board began to receive its first cash inflows in March 1999, there were numerous constraints imposed on how the money could be invested. Some constraints were self-imposed, while others were the result of legislation.

The self-imposed constraints emerged from having a small professional employee base at that time, which ended up creating a bias toward outsourcing investment and core service functions. The legislated constraints were embedded in the *CPP Investment Board Act and Regulations* and required that:

- CPP Investment Board have “regard to the factors that may affect the funding of the Canada Pension Plan”.<sup>4</sup>
- A maximum of thirty percent of assets could be invested outside of Canada.<sup>5</sup>
- All investments in Canadian equities must “substantially replicate broad market indexes.”<sup>6</sup>

The first constraint meant all new cash inflows would be invested in equities due to a large non-marketable bond portfolio that had been built up in the early years of CPP, and had to be taken into consideration but was not on the CPP Investment Board balance sheet at that time.<sup>7</sup> When combined with the second and third constraints, hallmarks of the strategy adopted in the early years included equity indexing with seventy percent invested in Canada and thirty percent outside of Canada.

### CPP ‘Net-Liabilities’

We interpreted then, as we do now, that the words having “regard to factors that may affect the funding of the Canada Pension Plan” mean we must consider the future net cash inflows and outflows of CPP and the factors that affect these, in other words, the net-liabilities of CPP. We use the term net-liabilities instead of the more common term liabilities since

CPP, not only has outflows due to benefit payments, but also future inflows from contributions that must be considered. The Chief Actuary of Canada projects that net inflows will exceed outflows on an annual basis until the end of 2019.<sup>8</sup> With FPR still in place, there was reduced scope for active management relative to a fully global portfolio. As a result, we had developed limited capabilities to actively manage the assets. These included using external partners in public markets, private equity, and real estate, and developing select internal capabilities in public equity trading and co-investments in private equity and real estate.

The accountability focus in the early years was on the return of the total portfolio relative to the net-liabilities, with an adjustment for risk.<sup>9</sup> The main shortcoming of this measure to hold management accountable, is that it is driven primarily by systematic or market returns that tend to be larger than the returns that are attributable to management decisions. Despite this, with limited active management capabilities and reduced scope for active management, it was a relevant success measure at the time. With the benefit of hindsight, it is clear that this measure is better suited to judge the overall success of reforms over long time horizons (e.g., multiple market cycles) than for measuring management decisions over shorter time horizons (e.g., four to six years). Both the link to net-liabilities and total portfolio approach were retained, adapted, and improved upon in the new strategy.

## Two Strategic Choices for Achieving the Mission of CPP Investment Board

We noted that the Board of Directors and management of CPP Investment Board initiated a strategic review in the fall of 2005. Its starting point was with the Chief Actuary of Canada who determined CPP assets must earn a real return (after inflation) of approximately 4.2 percent over the long-term to sustain current plan provisions.<sup>10</sup> While there are other possibilities, it is useful to consider two valid and distinct strategies to achieve this goal.

We have defined the first strategic option as the low-cost, low-complexity, passive investment approach. This choice would require a smaller organization that would be primarily focused on portfolio design and passive investment programs through external managers. Think of this as the lean manufacturing approach to generating investment returns. Priority would be placed on minimizing costs and Board oversight would be relatively straightforward.

We call the second strategic option the value-added approach. This choice seeks to achieve higher risk-adjusted returns through active investing. It requires a larger organization with diverse skills and backgrounds, along with corresponding systems,

policies and procedures. This approach demands a more complex organization with a focus on value-added returns and more complex Board oversight than required with the passive option. We will now look at these two choices in more detail.

### The Passive Choice

The passive choice entails designing a portfolio to reflect the underlying CPP net-liabilities that can be passively managed to access returns from liquid public markets in a low-cost manner. We defined the CPP Reference Portfolio as management's best recommendation on how to implement the passive investment option in practice at a point in time. While we recognize that the Reference Portfolio can and will evolve over time as the portfolio size, market, and demographic conditions evolve, it is meant to do so slowly, which is consistent with the long-term nature of CPP net-liabilities.

The Reference Portfolio provides an easy-to-understand, low-cost, low-complexity way to fulfill the CPP Investment Board mandate and is designed to reflect two key principles: it reflects the objectives and risk preferences envisioned by stakeholders, as well as our current view of the unique nature of CPP net-liabilities. To clarify, the Reference Portfolio is not intended to immunize the net-liabilities. It embodies an intentional mismatch to the net-liabilities that, by using reasonable capital market assumptions, should be capable of generating 4.2 percent real return over the very long-term to help sustain the plan. The Reference Portfolio therefore constitutes a viable strategic alternative for CPP Investment Board and a clear and robust benchmark to assess other strategic options. We will return to the specific Reference Portfolio following a discussion of our chosen path – the value-added choice.

### The Value-Added Choice

The value-added choice entails assuming a prudent amount of additional risk inherent in active investing to pursue returns beyond what passive exposure to liquid public markets can provide. The decision to pursue this option was not taken lightly. Implementing the active management option requires a larger and more complex organization than the passive option, and means that we have to attract talent that is highly sought after. Many aspire to succeed at active management, but relatively few are successful on a sustained basis. We then run the risk of incurring additional costs and not achieving incremental returns to offset these. Before committing to this option, we needed to answer the following questions:

- Is our governance structure strong enough to support it?
- Can active investing make a measurable difference?
- Can we build what it takes to succeed at active investing?

We concluded that the answers to these questions were “yes”, “yes” and “we believe we can”. With respect to the first question, our maximum strength governance model ensures we can operate independently of external interference in our investment mandate. That said, remaining a transparent organization and ensuring integrity in the way we conduct ourselves will help preserve our arm’s length governance model and investment-only mandate.

As for the second question, every fifty basis points in long-term performance beyond the Chief Actuary’s 4.2 percent real return assumption means the CPP contribution rate could decline by twenty-five basis points (or benefits could be increased by a corresponding amount). Additional returns could also act as a buffer if other CPP factors (e.g., fertility, wage growth, mortality) turn out less favourable than projected. This potential benefit, spread over seventeen million participants in the CPP, as well as every employer in Canada, across multiple decades, is material, and provides a compelling reason for us to pursue an active management approach.

When it comes to whether we can succeed in adding value, we believe we have structural advantages and are building developed advantages that will enable us to succeed at active investing. Structural advantages are those that arise from the nature of our role and mandate such as our long-term investment horizon, relative certainty of cashflows, and the size of our portfolio. Developed advantages are choices we make about how to operate as an investment organization and include the total portfolio approach, an ability to partner with world-class firms, and our culture.

Often, multiple advantages manifest themselves simultaneously. For example, portfolio size and an unwavering commitment to dealing fairly make CPP Investment Board an attractive strategic partner for top-tier investment managers, investment dealers, and investee companies around the world. The relative certainty of cashflows and our very long investment horizon, mean we can dedicate resources to hiring and developing the best people, and building robust investment processes and support systems. Another developed advantage has been the strategic decision to evolve our total portfolio approach to investing. We will discuss this further below, but first, we will take a closer look at the specific Reference Portfolio that we have chosen.

## The Reference Portfolio

The Reference Portfolio represents a clear benchmark to assess the chosen value-added strategy. The Reference Portfolio was created by the Board for accountability and measurement purposes and does not act as a target portfolio. It reflects the objectives and risk preferences as envisioned by CPP stakeholders, embodies the minimum level of systematic risk required to

meet those objectives, and provides a link to the net-liabilities. The goal was to create a diversified portfolio that could be reasonably expected to generate a long-term average annual real return of 4.2 percent assumed by Canada’s Chief Actuary.<sup>11</sup>

The risk preferences of CPP stakeholders has never been formalized or explicitly stated. In the document called “The Canada Pension Plan: Securing its Future for All Canadians”, introduced with legislation in 1997, the Federal and all ten Provincial Finance Ministers agreed that the investment policy of the CPP Investment Board should be “consistent with the investment policies of most other pension plans in Canada and the Quebec Pension Plan”. We interpreted this to mean that our stakeholders expected the portfolio to have a risk profile and asset mix of a typical large pension plan with sixty-five percent equities and thirty-five percent bonds. Not surprisingly, a portfolio with such an asset mix could be reasonably expected to generate a long-term real return of 4.2 percent.

With this as a backdrop, the Reference Portfolio whose expected return achieves the desired return objective, while minimizing risk, will clearly be a function of the asset classes considered eligible for inclusion, as well as any constraints imposed. Risk is defined using the performance of the Reference Portfolio relative to the present value of the net-liabilities. In this way, the Reference Portfolio will mitigate or hedge some of the risk of unexpected increases in net-liabilities. For our first Reference Portfolio, we defined four asset classes – foreign<sup>12</sup> equity, Canadian equity, Canadian nominal bonds, and Canadian real return bonds. This limited set of asset classes reflected our relative stage of maturity as an organization at the time. The composition of the Reference Portfolio adopted in April 2006 was forty percent foreign equities, twenty-five percent Canadian equities, twenty-five percent Canadian nominal bonds, and ten percent Canadian real return bonds.

## Nuances and Further Development

The Reference Portfolio’s equity-bond split reflects the required overall return expectation of the Reference Portfolio.<sup>13</sup> The weightings within equities and bonds reflect certain practical constraints, such as the liquidity of Canadian equities in general and our nominal bond holdings in particular. Our large non-marketable bond portfolio implied a minimum weighting in Canadian nominal bonds, while the liquidity of Canadian equities implied a maximum change in weighting relative to our holdings at the time. With those constraints in mind, the relatively high weighting in foreign equities helps mitigate the risk of net-contributions dropping simultaneously with Canadian equity prices, if the Canadian economy performs worse than expected. The relatively high weighting in Canadian real return bonds reflects the fact that CPP benefits are linked

to inflation and will increase with positive inflation shocks. Since the development of the original Reference Portfolio, our research program has provided a better understanding of the dynamics of the net-liabilities and the linkage to asset prices. We have built a sophisticated asset-liability model and multi-period, path-dependent optimization algorithm to help guide us in the recommendation of the next-generation Reference Portfolio. A new Reference Portfolio was recently approved by the Board that is comprised of a broader range of publicly-traded asset classes, which reflects the evolution of markets and a lessening of constraints over time. It will be adopted for the 2010 fiscal year.<sup>14</sup>

Given that the Reference Portfolio is the benchmark used to measure management’s active decisions, two independent experts were asked to review the research methodology and how the asset-liability problem was framed. Both concluded that the research methodology was robust, and that the problem was framed correctly given the legislated investment objectives.

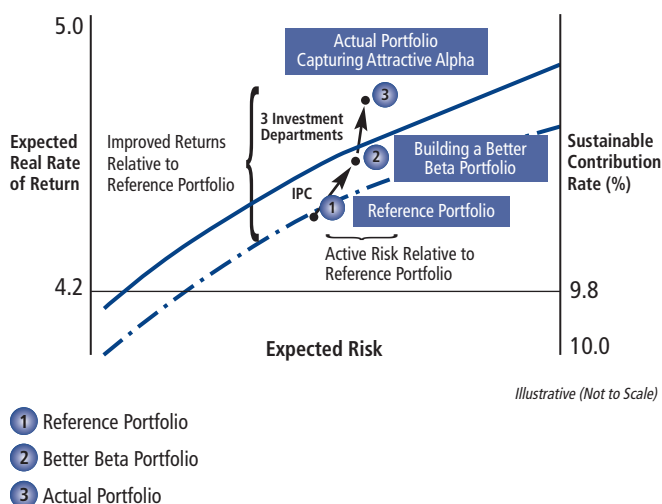
### Better Beta Strategies

The focus of our active management approach is to exploit the comparative advantages of CPP Investment Board. There are two broad categories: acquiring additional sources of beta or market-based returns beyond the highly liquid public market exposures in the Reference Portfolio, which we refer to as better beta, and capturing alpha or excess returns through skill-based active management programs.

Starting with the cornerstone liquid asset classes within the Reference Portfolio, the Better Beta Portfolio adds additional sources of market-based returns to provide the benefit of increased diversification, as well as potentially higher returns to the overall portfolio. Examples of additional sources of beta include private debt, infrastructure, and real estate. Accessing these sources of beta often requires us to operate in the private markets that, in the cases of real estate and infrastructure, are significantly larger than their public market counterparts. While we discuss how we approach the problem in a subsequent section, it is also difficult to clearly separate beta and alpha in private markets. They are bundled together.

Figure 1 illustrates the relationship between the Reference, Better Beta and Actual portfolios that capture skill-based returns. The Better Beta portfolio is more efficient than the Reference Portfolio, as measured by its expected return for a given level of risk, due to the diversification brought about by a broader set of asset classes. The Actual Portfolio is even more efficient in the sense that it is ideally beyond the efficient frontier and relies upon inefficient markets and skill to extract additional return.<sup>15</sup>

Figure 1: Total Risk/Reward Opportunity Sets

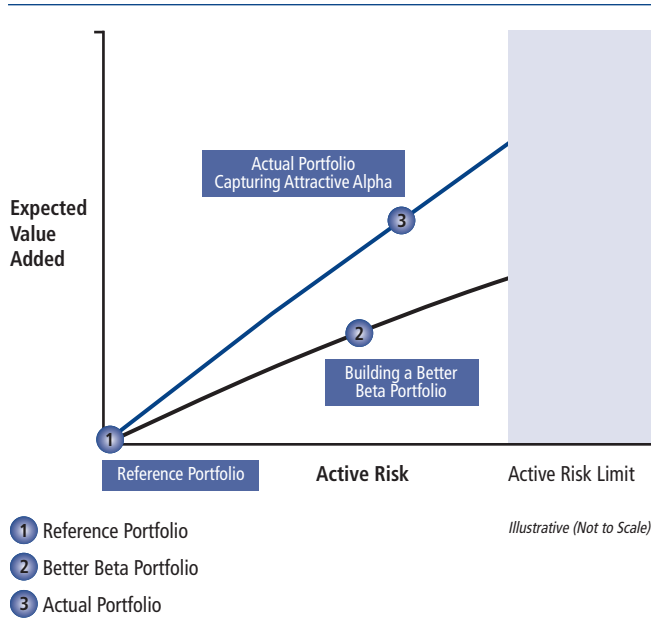


### Skill-Based Excess Returns

As compared with beta returns, alpha returns are by nature skill-based. Examples include active stock selection, currency overlays, hedge funds, and private equity principal investments. These sources of return are particularly valuable since they do not add in a material way to the overall systematic risk of the portfolio. In other words, these tend not to be influenced by whether broad market returns are positive or negative. We can access areas of specialized skills through relationships with external managers, keeping in mind that identifying, screening, and managing relationships is in itself a skill-based activity. Our strategy is increasingly focused on developing highly-scalable internal active capabilities that complement the ongoing work of our external partners.

Figure 2 shows the same three portfolios as Figure 1, highlighting active decisions. Since active risk and value added are measured relative to the Reference Portfolio, the Reference Portfolio is deemed to have no active risk and commensurately no value-added. Also note that there is an active risk limit shown by the shaded area on the right side of the graph. The active risk limit relative to the Reference Portfolio, along with credit limits (collectively, risk limits) are both approved by the Board and together govern the overall risk that management can employ in its active programs. These risk limits are reviewed annually and set at a level that permits flexibility without exposing fund assets to excessive risk or undue underperformance relative to the Reference Portfolio. This acts as a constraint on management’s aggregate better beta and alpha decisions and encourages management to efficiently allocate active risk across active investment programs.

**Figure 2: Active Risk/Reward Opportunity Sets**



## Organization Design

Figure 3 shows how we are organized to make investment decisions. The accountabilities correspond to the numbers in Figures 1 and 2. The Board, with input from management, approves and is ultimately responsible for the performance of the Reference Portfolio. Management is delegated the better beta and alpha decisions, subject to the Board-approved risk limits. Figure 3 also shows that we have organized our investment and execution activities within three multi-functional departments.

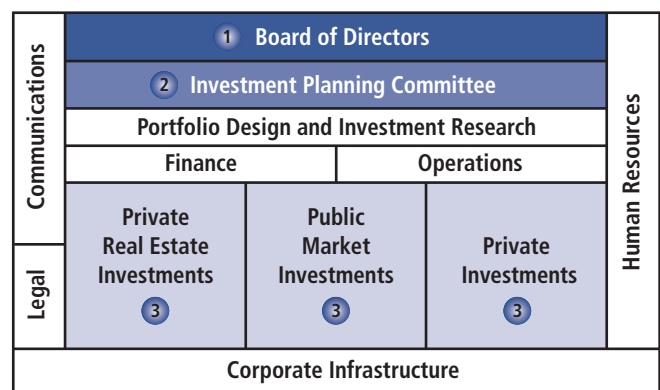
Public Market Investments is responsible for investments in listed or over-the-counter securities or any derivative primarily based upon those securities. Private Investments is responsible for private investments excluding real estate. Private Real Estate Investments is responsible for fund or direct investments in real property, as well as strategic investments in publicly-listed real estate vehicles. Each of the investment departments has an Investment Department Decision Committee (IDDC) that serves as the forum for vetting and approving new investment transactions and active programs within their delegated authority. Each IDDC is chaired by the CEO and has senior representation from the respective investment department.

The Investment Planning Committee (IPC) ensures that investment policies, standards, and procedures are followed

according to the CPP Investment Board Act, the Regulations, and Board-approved risk and return accountability policies. IPC is chaired by the CEO and is comprised of investment and other senior officers of CPP Investment Board. It is the fourth place where active decisions are made and is accountable for the beta decisions relative to the Reference Portfolio. This includes longer horizon strategic exposures (e.g., total equity), as well as better beta decisions. These are tracked and contribute to the total fund value-added. With no execution capabilities, IPC makes better beta decisions by approving additional sources of beta (e.g., real estate or corporate debt), as well as appropriate funding sources and benchmarks. These new exposures are implemented by the appropriate investment department with the benchmark used to attribute performance between beta and alpha.

The Portfolio Design and Investment Research (PDIR) department provides total portfolio design and risk management recommendations, advice, and analysis to IPC. PDIR also advises IPC on the use of risk relative to the risk limits and works with the three investment departments to translate their investment activities into marginal risk and return expectations at the total portfolio level. The role of Operations is to provide the robust reporting, performance measurement, and attribution capabilities that enable management and the Board to monitor fund performance.

**Figure 3: CPP Investment Board Organizational Design and Accountabilities**



- 1 Reference Portfolio
- 2 Better Beta Portfolio
- 3 Actual Portfolio (Alpha)

## Total Portfolio Approach

The Total Portfolio approach was a key element of the original strategy that was adapted and improved upon for the new strategy. Consequences of the Total Portfolio approach flow from the simple reality that we are managing one portfolio. This is not just a theoretical insight. All benefits will eventually be paid out of one portfolio, constraints (such as the former FPR) are often imposed at the Total Portfolio level and many portfolio management concepts (e.g., diversification and liquidity management) are most appropriately applied at the Total Portfolio level. We recognize that whatever organizational design we put in place to manage the portfolio has the potential to lead to barriers to effective communication. This in turn can lead to silos and ultimately, suboptimal investment performance. We have intentionally organized ourselves in a way that requires a focus on the efficiency of the Total Portfolio, not on the performance of individual asset classes or individual investment departments.

We strive to make the Total Portfolio as efficient as possible by considering proposed investments in terms of their marginal risk and return contribution to the Total Portfolio. Under this approach, we do not target specific weightings for individual asset classes. Instead, we focus on the risk/return attributes of proposed investment strategies to allocate active risk. Private equity, for example, is considered a security selection strategy within equities and not an asset class by itself. Most organizations manage their private and public equity portfolios largely independent of one another. We manage these in an integrated fashion based on the belief that if returns from private equity were continuously observable, then these would be reasonably highly correlated to the public equities in the same sector and geographic region.<sup>16</sup> There would also be a time-varying liquidity premium (modest in the early years but quite large today) and company-specific returns and risks. This belief is justified by the fact that private and public companies in the same sector and geographic region are subject to the same macroeconomic forces and that public markets often serve as an exit mechanism for private equity investments.

## How It Works in Practice

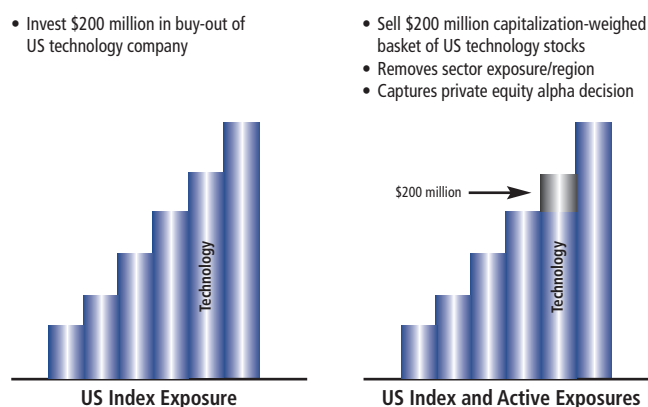
Figure 4 offers a stylized illustration of how this works in practice by using the example of a \$200 million buyout in the technology sector in the United States. The process would be the same, whether the investment was the result of a capital call from one of our external investment fund partners, a co-investment with them, or a direct investment made by our internal direct-investing team. The investment would be funded by selling \$200 million of a market capitalization basket of publicly traded American technology stocks. The private

equity investment is benchmarked relative to this passive public equivalent, and provided it outperforms the benchmark, it has added value to the portfolio.

In practice, it is a little more complicated than this, as we take the different leverage inherent in private equity into account by selling a beta-adjusted quantity of public equities, and buying beta-neutralizing bond exposure. Similarly, infrastructure investments include a broad range of assets with very different risk/return characteristics and would be funded and benchmarked accordingly. For example, established assets with low earnings volatility, such as water distribution networks and toll roads, are relatively low-risk and would be funded and benchmarked primarily with fixed income components of the Reference Portfolio. On the other hand, the higher risk associated with developing and building new infrastructure would be funded from a combination of equity and debt.

Categorizing investments by risk/return attributes rather than traditional labels offers a better appreciation of the expected contribution of each investment to the portfolio and permits a more accurate assessment of actual outcomes. This also presents a substantial organizational challenge, as it requires nearly seamless integration of the three investment departments with PDIR and Operations departments. This in turn requires a culture that values teamwork and constant communication, combined with supporting risk and performance reports. It is much easier to describe than to implement in practice.

## Figure 4: Funding a \$200 Million Buy-Out Transaction



## Compensation

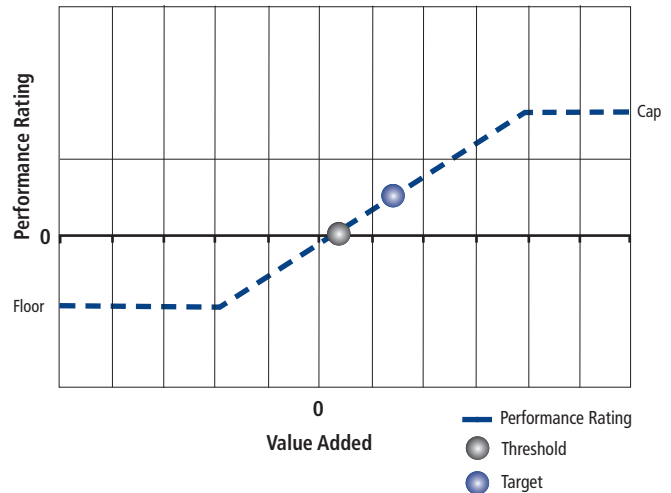
Consistent with our objective of building a high-performance organization, we have developed and implemented a market-based, performance-driven, incentive compensation system that

aligns the risk/return accountability framework with our value-added strategy. The incentive plans are designed to achieve alignment between skill-based, value-added and compensation. All performance used for compensation purposes is based upon four year results to strike a balance between our long-term investment mission and a reasonable accountability timeframe. Adding value beyond the benchmarks over four year periods is difficult and a good indicator of skill.

Investment performance is determined by our performance relative to Board-approved benchmarks. Total value-added is measured relative to the Reference Portfolio whereas investment departments (e.g., Private Investments) and asset class-groups (e.g., Infrastructure) are measured relative to benchmarks that separate beta and alpha returns to a practical extent. Consistent with the Total Portfolio approach, and to emphasize that our success is ultimately reflected in total fund results, all employees have an element of total fund performance within their incentive plan composition and that weighting increases with seniority. Investment professionals have incentive compensation tied to total fund, department, and asset class or group performance. For more senior positions, greater weighting of total compensation is placed on long-term incentives, and within the long-term incentives, greater weighting is placed on total fund value-added relative to the department.

Compensation curves that are the basis for the incentive compensation system have been developed for the total fund, investment departments, and asset class or group and are designed in a similar manner. Figure 5 illustrates some of their key features. Each has a threshold level of value-added that must be achieved before a positive investment performance rating is assigned. In general, the threshold corresponds to the level of operating expenses for the fund, department or asset class or group as appropriate. As a result, positive performance is achieved only after costs are recouped. Each curve also has an effective slope linking various performance scenarios to ratings. Demonstrable and sustained achievement of superior results should lead to upper end of market-based pay opportunities. Caps and floors are applied to these ratings annually so that any one year does not have a disproportionate impact on the overall four year rating. In addition, these are symmetric to the target to provide fairness on the upside and downside.

**Figure 5: Mapping Value-Added into a Performance Rating Scheme**



### Maintaining a Delicate Balance

This article has offered a high level discussion of the strategic choices, risk/return accountability framework, organization design, and compensation system adopted by CPP Investment Board approximately three years ago. Out of necessity, we have omitted important details as each topic could be a whole paper by itself. We believe that the individual pieces are coherent and fit together. While the implementation choices set out are specific to CPP Investment Board, we recognize that others may have taken a similar approach. We also recognize that our approach is not perfect and there is always room for improvement. It is our hope that this paper leads to further discussion on some of the trade-offs involved.

Strategy is about trade-offs. One very important, clear, and deliberate trade-off we made was to define the Reference Portfolio as a key attribution point for determining value-added due to management decisions. While in theory a single-step process to portfolio construction (e.g., net-liabilities to actual portfolio) is optimal when compared with a two-step process (e.g., net-liabilities to Reference Portfolio and then Reference Portfolio to actual portfolio), the practical benefit is a system of clear management accountability. Continued diligence and focus by the Board and management on the Reference Portfolio is therefore critical to achieving the long-term mission of the CPP Investment Board.

## Endnotes

1. CPP Investment Board Act – section 5. For a full explanation of the economic, demographic and political factors leading to the CPP Investment Board and its mandate, see: *Fixing the Future*, by Bruce Little (2008), University of Toronto Press.
2. The FPR applied to all registered pension assets (e.g. Public and Corporate Pension plans, Individual Registered Retirement Savings Plans) and, as of the date of its repeal, stipulated that a maximum of 30% of assets (by cost amount) could be invested in foreign property.
3. CPP Investment Board Act – section 5.
4. CPP Investment Board Act – section 5.
5. CPP Investment Board Act – section 37.
6. CPP Investment Board Act Regulations – section 10, repealed November 2001.
7. Value of the nonmarketable bonds as at March 31, 2004 was \$30.2 billion. The bonds were subsequently transferred to CPP Investment Board over a three year period starting May 2004.
8. 23rd Actuarial Report of the Canada Pension Plan as at December 31, 2006.
9. The technical name for the measure is Risk Adjusted Net Value Added (RANVA).
10. 21st Actuarial Report of the Canada Pension Plan as at December 31, 2003, which was the most current at the time the strategy was developed. In the subsequent report (23rd), as at December 31, 2006, the projected long-term real return on CPP assets was unchanged at 4.2 percent. This assumes the Chief Actuary of Canada's "best estimate" economic and demographic assumptions.
11. 21st Actuarial Report of the Canada Pension Plan as at December 31, 2003.
12. Foreign is non-Canadian or global ex-Canada, depending on your perspective.
13. Our long-horizon real return expectations for Canadian and foreign equity are very similar as are our expectations for Canadian nominal and real return bonds, so that the equity/bond split is determined by the required real return expectation of the Reference Portfolio.
14. April 1, 2009.
15. Apologies for showing the expected result from active management, which require inefficient markets, on an efficient frontier, but it illustrates the concept, nonetheless.
16. With FPR in place we used ten Global Industry Classification System (GICS) sector definitions and two regions (Canada and non-Canada). Post-FPR we use ten GICS sectors and six regions (Canada, United States, United Kingdom, Europe ex-United Kingdom, Japan, and non-Japan Asia).



## About Rotman International Centre for Pension Management

The mission of the Rotman International Centre for Pension Management (Rotman ICPM) is to be a catalyst for improving the management of pensions around the world. Through its research funding and discussion forums, the Centre produces a steady stream of innovative insights into optimal pension system design and the effective management of pension delivery organizations. Using *Integrative Investment Theory* as its guide, research and discussion topics focus on agency costs, governance and organization design, investment beliefs, risk measurement and management, and strategy implementation. The role of the *Journal* is to disseminate the new ideas and strategies that result from the activities of Rotman ICPM to a global audience. The Research Partners of the Centre believe that this broad dissemination is a win-win proposition for both professionals working in the global pension industry, and for its millions of beneficiaries.

### Publisher and Editor

Keith Ambachtsheer

### Associate Publisher and Editor

Ann Henhoeffter ([icpm@rotman.utoronto.ca](mailto:icpm@rotman.utoronto.ca))

### Copy Editor

Brigette Kocijancic, ABC

### Design

[watermarkdesign.ca](http://watermarkdesign.ca)



151 Bloor Street West, Suite 702  
Toronto, Ontario Canada M5S 1S4  
Tel: 416.925.7525  
Fax: 416.925.7377  
[www.rotman.utoronto.ca/icpm](http://www.rotman.utoronto.ca/icpm)



## Editorial Advisory Board

### Australia

**Jack Gray** - Sydney University of Technology

**Wilson Sy** - Australian Prudential Regulation Authority

### Canada

**Leo de Bever** - Alberta Investment Management Corporation

**Paul Halpern** - Rotman School of Management, University of Toronto

**Claude Lamoureux** - Corporate Director

### Denmark

**Ole Beier** - Danish Labour Market Supplementary Pension (ATP)

### Japan

**Sadayuki Horie** - Nomura Research Institute

### Netherlands

**Rob Bauer** - Maastricht University

**Dirk Broeders** - De Nederlandsche Bank

**Jean Frijns** - Corporate Director

### New Zealand

**Tim Mitchell** - New Zealand Superannuation Fund

### Norway

**Knut Kjaer** - Corporate Director

### Sweden

**Tomas Franzén** - The Second Swedish Pension Fund (AP2)

### United Kingdom

**Gordon L. Clark** - Oxford University

**Roger Urwin** - Watson Wyatt Worldwide

### United States

**Don Ezra** - Russell Investments

**Brett Hammond** - TIAA-CREF

Unsolicited articles can be submitted to [icpm@rotman.utoronto.ca](mailto:icpm@rotman.utoronto.ca) for consideration by the Editorial Advisory Board.

## 2008 / 2009 Research Partners

### Australia

Australia Future Fund

Australian Prudential Regulation Authority

SunSuper

Victorian Funds Management Corporation

### Canada

Alberta Local Authorities Pension Plan

Caisse de dépôt et placement du Québec

Canada Pension Plan Investment Board

Ontario Municipal Employees Retirement System

Ontario Teachers' Pension Plan

### Denmark

Danish Labour Market Supplementary Pension (ATP)

### Japan

Nomura Research Institute

### New Zealand

New Zealand Superannuation Fund

### Netherlands

All Pensions Group

Cordares

Mn Services

De Nederlandsche Bank

PGGM

Syntrus Achmea Asset Management

### Sweden

The Second Swedish Pension Fund (AP2)

### United Kingdom

Universities Superannuation Scheme

### United States

TIAA-CREF

Washington State Investment Board



© 2009 Rotman International Journal of Pension Management is published by Rotman International Centre for Pension Management at the Rotman School of Management, University of Toronto, CANADA in partnership with Rotman/University Toronto Press.

Rotman International Journal of Pension Management is distributed at no charge as an electronic journal and can be accessed by visiting [www.rotman.utoronto.ca/icpm](http://www.rotman.utoronto.ca/icpm). Print copies can be purchased at a cost of C\$50.00 per issue (includes tax and shipping). To order print copies please visit [www.rotman.utoronto.ca/icpm](http://www.rotman.utoronto.ca/icpm).



This work is licensed under the Creative Commons Attribution-NonCommercial-No Derivative Works 2.5 Canada License. Under Creative Commons, authors retain ownership of the copyright for their article, but authors allow anyone to download, reuse, reprint, distribute, and / or copy articles from the journal, as long as the original author(s) and source are cited. No permission is required from the Author(s) or the Publisher. To view a copy of this license please visit [www.rotman.utoronto.ca/icpm](http://www.rotman.utoronto.ca/icpm).

ISSN 1916-9833 (Print) – C\$50.00  
ISSN 1916-9841 (Online) – no charge