

Pension Finance and Management

PENSION FINANCE AND MANAGEMENT

Rajeeva Sinha

eCampusOntario



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CONTENTS

Acknowledgements	vii
Adopting or adapting this textbook	viii
Module 0 The Pension Landscape	
Topic 1: Introduction	3
Rajeeva Sinha	
Topic 2 : Gathering Stories and Other Activities	12
Rajeeva Sinha	18
Module 1 Design	
Topic 1: The World Bank's Five Pillar Framework	21
Rajeeva Sinha	
Topic 2: Pensions as Intertemporal Choice	26
Rajeeva Sinha	
Topic 3: Social Contracts and Pension Design	34
Rajeeva Sinha	
Topic 4: The Pension Design Framework	45
Rajeeva Sinha	
Topic 5: The Constraints on the Pension System	58
Rajeeva Sinha	
Module 2 Governance	
Topic 1: Governance of Pension Plans	75
Rajeeva Sinha	
Topic 2: Pension Governance - The Role of Learning	85
Rajeeva Sinha	
Topic 3: Modes of Learning	92
Rajeeva Sinha	
Topic 4: Enablers of Pension Governance	101
Rajeeva Sinha	
Module 3 Investments	
Topic 1: Pension Investments: An Overview	115
Rajeeva Sinha	
Topic 2: The Investment Policy Statement	116
Topic 3: Performance Evaluation	117
Topic 4: Long Term Investments	118
Topic 5: Deaccumulation	119
References	121

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The pedagogy underlying this open textbook was developed with the help of [Nobuko Fujita](#) of the [Office of Open Learning](#), University of Windsor. Our vision of this open textbook platform is that it will be eclectic, and a living resource that will evolve to respond to new developments, data and information and emerging challenges. Hence the book is in the process of ongoing revision and evolution.

Nobuko also edited drafts of the book with [Erica Lyons](#), and formatted it in PressBooks.

[Ryan J. Frith](#) designed the original cover art, provided graphical design consultation on PressBooks, and created many of the tables and figures in the book.

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ADOPTING OR ADAPTING THIS TEXTBOOK

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[eCampusOntario](#) is a not-for-profit corporation funded by the Government of Ontario. It serves as a centre of excellence in online and technology-enabled learning for all publicly funded colleges and universities in Ontario and has embarked on a bold mission to widen access to post-secondary education and training in Ontario. This textbook is part of eCampusOntario's open textbook library, which provides free learning resources in a wide range of subject areas. These open textbooks can be assigned by instructors for their classes and can be downloaded by learners to electronic devices or printed for a low cost by our printing partner, The University of Waterloo. These free and open educational resources are customizable to meet a wide range of learning needs, and we invite instructors to review and adopt the resources for use in their courses.

MODULE 0 THE PENSION LANDSCAPE

TOPIC 1: INTRODUCTION

Rajeeva Sinha

Financing old age or pensions is a challenge for individuals and societies. Longevity has been rising across the world. More relevant to retirement, life expectancy at age 60 has also been on the increase according to the World Health Organization ([Global Health Observatory Data](#) of the World Health Organization). For example, in Canada, life expectancy at age 60 went up from 22.7 years in the year 2000 to 25.7 years in the year 2016. With rising longevity there is a growing concern whether individuals and societies are prepared to take on the responsibility of financing retirement at expected and sustainable levels. A recent analysis notes a decline in the rate of increase of life expectancy in developed countries since 2011. However, the long-term outlook of longevity increases and impact on sustainability of pensions remains uncertain.

From a finance perspective there is another reason why we need to study pensions. Much of what we discuss in standard finance curriculum assumes an individual decision maker motivated by self interest and capable of utilizing all available information in its decisions. However, as Global Asset Tables show (Wills Towers Watson, 2018), most financial assets are managed in institutional settings where agency conflicts are typical. In an organizational or institutional setting multiple decision makers are involved in principal agent relationship where given their differing objective functions, agency conflicts will be pervasive. It is important that we explore how stylized decision rules of finance play out in an organizational setting. The pension sector is an example of a sector where decisions are taken in an institutional setting and agency conflicts are endemic. As a sector it offers a unique opportunity to explore how financial decisions are taken in an institutional setting with inherent agency conflicts.

For more detailed analysis of rising longevity and to get a glimpse of the what Actuaries do, see Presentation by Jean-Claude Ménard, Chief Actuary, to the Canadian Association of Pension Supervisory Authorities, Vancouver, October 2, 2018. [Living to 100 – Would Canada Pension Plan be Sustainable?](#)

The Three Major Financial Decisions

Financing education, home ownership and old age are [three major personal financial decisions](#) that an individual or a household will make over their lifetime. Of the three, financing old age is the more complex decision. Education and home ownership decisions are relatively less challenging for an individual as the costs are over the long-term and are contractual. Also, the benefits of these decisions become apparent almost immediately. If you enroll in an educational program you gain knowledge, skills and understanding. You improve your career and earning prospects in the medium and long-term, and experience other socio-economic benefits over a lifetime and over generations. When you buy a house, you start living in it and experience a change in your cash outflow from paying rent to contributing to a long-term asset – the house. Thus, the benefits of

education and home ownership are front loaded and there is a contractual obligation to pay back borrowed money over the long term.

In contrast, the sequencing of benefits and costs are flipped in financial planning for retirement. The costs are non-contractual and represent a unique challenge to an individual as they are incurred in the present and benefits are expected in the distant future. Longevity and health have a degree of variability at the individual level and this makes the expected benefits from current savings in retirement uncertain. In the discussion that follows, we analyze and explore this unique financial planning decision challenge. Two specific areas of knowledge are relevant for this analysis: our understanding of human rationality as it applies to long-term decisions; and our understanding of the rules of co-operation between individuals in a society, the social contract.

Explore



Click on the following links to explore major personal financial decisions

Major Financial Decisions: <https://www.canada.ca/en/services/finance.html>

Pensions and Retirement <https://www.canada.ca/en/services/finance/pensions.html>

Why this Textbook?

Sustainable and acceptable financing of retirement will require finance professionals who are not just narrowly focused on managing assets but understand the challenges to implementing stylized finance decision rules in an institutional setting. The eText recognises the diversity of viewpoints and decisions that are proposed towards sustainable pensions and financing of old age retirement. This open textbook will bring together a body of knowledge that can inform us about how these lifetime financial **accumulation** and **de-accumulation** pension decisions are taken. There is no presumption that there is unanimity on what is the best approach to superior pension outcomes. The objective of this open access electronic textbook is to support professional and informed engagement on pensions and old age financial security in a finance curriculum by bringing together appropriate tools and concepts to support financing of retirement. The only starting premise of this eText is that a simple extrapolation of human behavior motivated by self-interest cannot be relied upon to counter the effects of the flipped nature of the cost benefit structure of savings for pensions and old age financial security.

This eText will support a more informed and comprehensive discussion of the financing of pensions that brings together insights from a variety of disciplines like psychology, biology; political science and of course economics. The dominant voices in the conversation on pensions are those of providers and the financial services industry. This results in outcomes that shift the responsibility of financial security to individuals, emphasize choice, and generate expectations about savings that cannot be delivered across the board for all. This could be either a deliberate response of vested

interests, or a result of the lack of integration of the knowledge base that exists on pensions and old age financial security systems. For example, often the choice in occupational pension plans is presented as between defined benefit or a defined contribution plans. The response to the unsustainable **defined benefit** (DB) plans has been a growing adoption of **defined contribution** (DC) plans and policies aimed to promote private savings. Though this is consistently presented in policy discussions and labor market negotiations as a reasonable response, there is no evidence that it works for most individuals. Nevertheless, DC and private savings continue to be promoted at tremendous costs and uncertainty in contract negotiations and through tax incentives. It is instructive to note here that the data on DC plans such as the 401(K) plans in the US show a low level of average savings closer to retirement. Furthermore, in Canada data suggests that the popularity of DB plans continues to rise for plans with membership of 100 or less subscribers and contradicts the overall switch of large plans with 1000 or more members from DB to DC plans (Baldwin, 2017)

The discussion on pensions is a highly contested one and further complicated by the growing **expectations gap**. For the workforce and retirees, pensions are not only about financial sustenance of post working years, but also an earned option that enables working adults to withdraw from the workforce in their later years to pursue what they value. Gallup polls suggest that only one-third of employees are engaged in their work and workplace. Many employees work “pointless jobs” to which they feel indifferent ([BBC World Service, 2018](#); [Graeber, 2018](#)). A financially secure retirement is a deferred wage that the workforce expects to rely onto pursue what they value. Table 1 demonstrates that expectations from retirement are by no means universal. Different socio-economic and cultural segments have different expectations of retirement. An expectations gap emerges when the social contract to provide for old age is continuously being renegotiated by the requirements of competitiveness and profitability of the production system. The challenge to bridge the growing expectations gap is exacerbated by rising costs of healthcare, increasing longevity, labour market changes, and the goals and objectives of various interest groups associated with the financing and provisioning of retirement funds, such as the financial services industry.

Table 1 demonstrates that expectations from retirement are by no means universal. Different socio-economic and cultural segments have different expectations of retirement. An expectations gap emerges when the social contract to provide for old age is continuously being renegotiated by the requirements of competitiveness and profitability of the production system. The challenge to bridge this growing expectations gap is exacerbated by rising costs of healthcare, increasing longevity, labour market changes, and the goals and objectives of various interest groups associated with the financing and provisioning of retirement funds, such as the financial services industry.

<i>Objective</i>	<i>Average Score</i>	<i>Top Three</i>	<i>Bottom Three</i>
Maintain Standard of Living	8.3	73%	2%
Additional for Health Expense	8.0	66%	3%
Additional for Travel, Recreation	7.9	66%	3%
Additional to Help Family Members	7.2	53%	10%
Additional for Bequest	6.2	36%	18%

Table 1 Defining retirement income objectives helps financial planners identify different expectations that individuals have for retirement using scores rated 1 to 10.

Note. Adapted from [Baldwin \(2017\)](#), p. 3

What Will you Learn?

National pension systems are often discussed in terms of a five pillar typology developed by the World Bank (2005) based on its global over view of pension systems around the world. The five pillars are a mix of publicly or privately managed and funded or unfunded plans. Not all pillars are necessarily present or emphasised equally in a country's pension system. How does a national pension system evolve its own unique mix and emphasis between these pillars? This will be the focus of our discussion in the next module. We analyze inter-temporal choice and the three different approaches to rationality: classical; bounded and ecological. We also explore social contracts that underpin all socio economic policies including pensions. These examinations allow us to develop a general approach to national pension systems and the basis of the choice and emphasis in the five pillar typology of the World Bank.

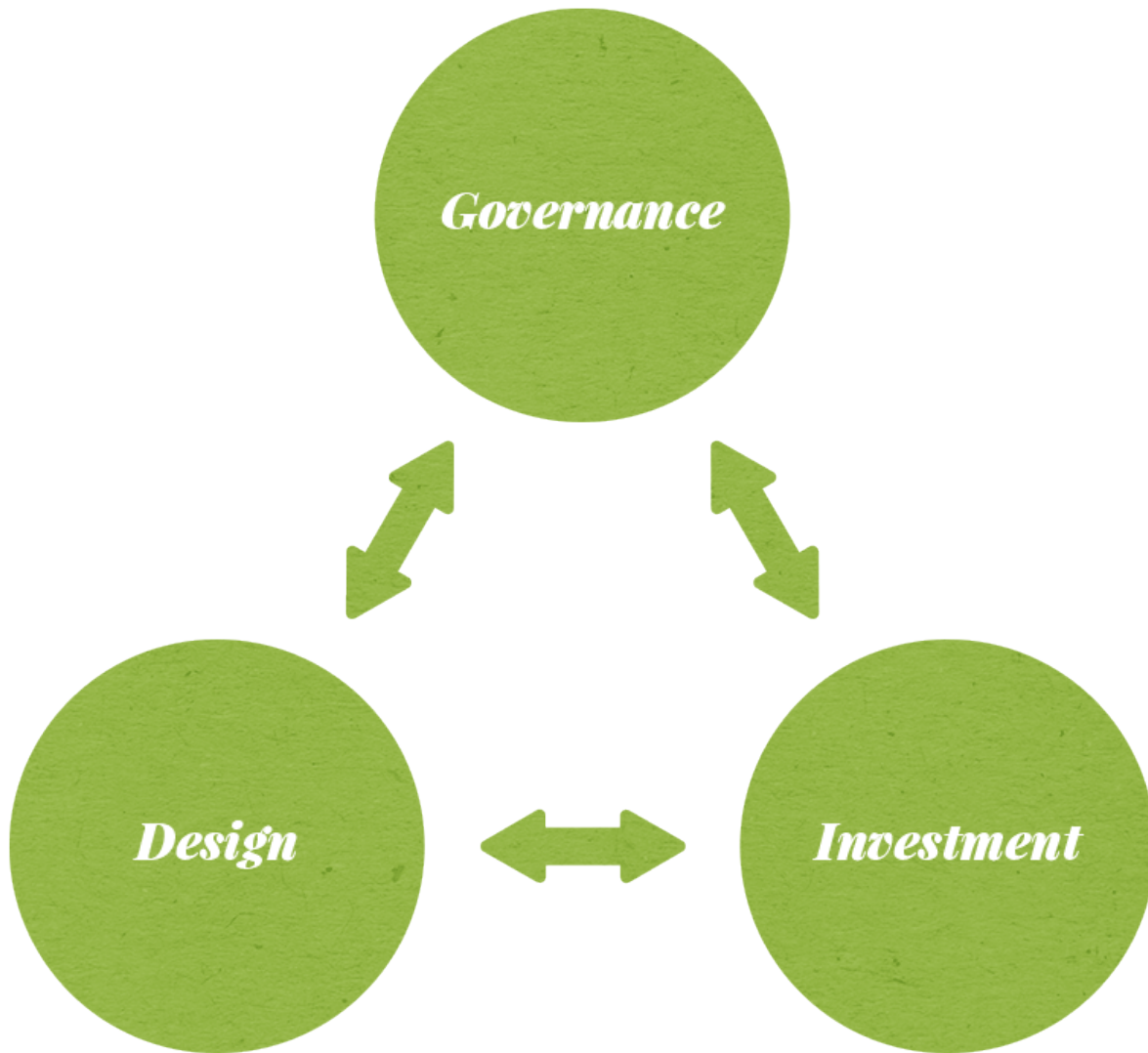


Figure 2. The Design (D) Governance (G) Investment (I) Framework (DGI Framework) for Integrating Pension Management

Next for a given pension system we evaluate consideration that will apply to an efficient implementation of a pension plan. Following Ambachtsheer (2016), we examine the provisioning of pensions as an integrated and interdependent system of design, governance, and investment principles. Pension outcomes are visualized as an interactive and interdependent outcome of pension design (D), governance (G), and investment decisions (I) and we call this the DGI framework. Governance of pensions will depend upon its management (public or private) and funding status (funded or pay as you go from tax revenues). The governance and design will influence the choice of decision makers in the investment management of national pension systems. We will explore their inter dependencies and interaction between D, G & I in the subsequent modules.

The goal of a pension system is to promote funded pensions that are affordable to subscribers and sponsors and provide payment security. Affordability and payment security can be facilitated by examining the architecture of the pension organizations. An integrated view of the DGI architecture of pensions is shown in the figure above. The goal of pension provision is an integration of three principal interdependent considerations: design, governance, and investment. The challenge is to bring together this integration between design, governance and investment at the system, organizational and individual levels.

How is This Open Textbook Organized?

The organization of this open textbook acknowledges the contested nature of the field. There are opposing perspectives on individual responsibility and social contract and the use of collective versus individual instruments. This open textbook will have a collection of standalone topics grouped into four modules

Module 0. The Pension Landscape

Topic 1: Introduction

[Topic 2: Gathering Stories & Other Activities](#)

Module 1. Design

[Topic 1: The World Bank's Five Pillar Framework](#)

[Topic 2: Pensions as Intertemporal Choice](#)

[Topic 3: Social Contracts and Pension Design](#)

[Topic 4: The Pension Design Framework](#)

[Topic 5: The Constraints on Pension System](#)

Module 2. Governance of Pensions

[Topic 1: Governance of Pension Plans](#)

[Topic 2: Pension Governance – The Role of Learning](#)

[Topic 3: Modes of Learning](#)

[Topic 4: Enablers of Pension Governance](#)

Module 3. Investments of Pension Assets Pension Assets

Topic 1: Pension Investments: An Overview

Topic 2: The Investment Policy Statement

more topics to follow....

This open textbook is visualized as an evolving and living resource that will reflect the latest thinking and innovations in the important field of old age financial planning. The organization of

the eText into individual topics and modules supports the continuous evolution and updating of the knowledge base on pensions.

How Will You Learn?

The overall pedagogy is influenced by Bonk & Zhang's (2006, 2008) R2D2 model (see Figure 1), which involves students interacting with verbal and visual content, reflecting on those stimuli, displaying visual representations of the disciplinary elements (instructor and student led), and the 'doing' or practice exercises.

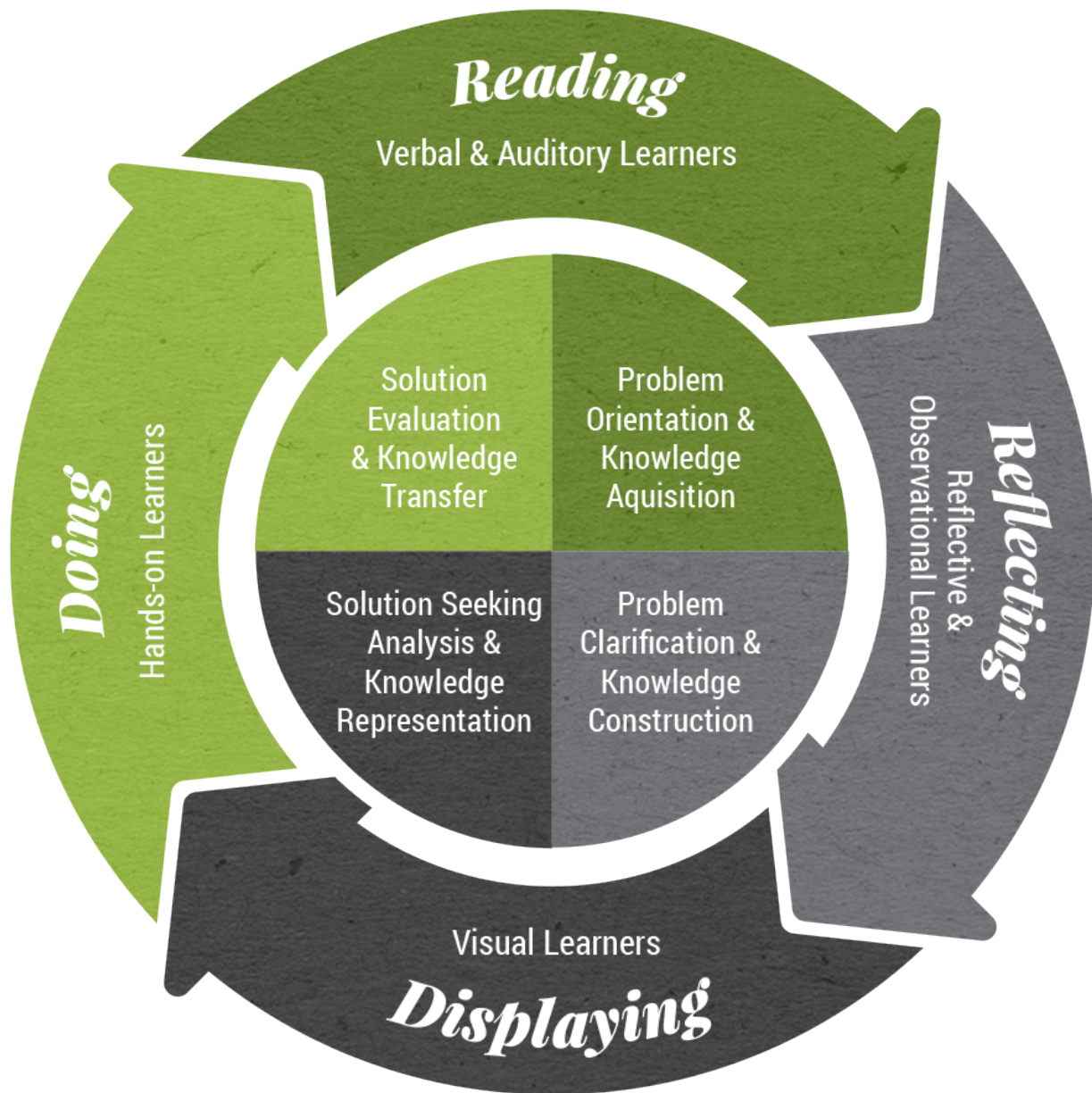


Figure 2. Bonk & Zhang's (2006, 2008) R2D2 model.

Below are the suggested study steps according to this model:

1. Read (& Listen)

- Before class, read all assigned readings (article, website, video, podcast, etc.)
- Read all messages from your instructor *and peers* (announcement/emails, discussion forum posts), not just your own posts!
- In class, listen to instructor and peers (be *present*)

2. Reflect (& Observe)

- Before, during, and after class, critically *reflect* on what you've read/heard
- *Record* your ideas, thoughts, feelings
- *Differentiate* your ideas from others' ideas (problem clarification)
- Construct knowledge, deepen understanding

3. Display

- Be creative with representing your knowledge!
- In addition to traditional tables and charts created using Word, Excel, PowerPoint, etc., you can use concept maps, tables, charts, audio, video, info graphics, etc.
- Free software is available for concept mapping:
Coggle <https://coggle.it/>
Bubbl.us <https://bubbl.us/>
Cmap Cloud <https://cmapcloud.ihmc.us/>
- Free software is available to create podcasts and video
Audacity <https://www.audacityteam.org/>
APowersoft <https://www.apowersoft.com/free-online-screen-recorder>
- Free software is available for info graphics
Venngage <https://venngage.com/>
Easel.ly <https://www.easel.ly/>

Doing (Applying)

- Hands-on, active learning
- Problem solution evaluation
- Knowledge transfer
- Contributor to the open textbook

Building, implementing and sustaining pensions is a work in progress, a challenge that needs to continuously respond to ongoing changes in the socioeconomic environment that current and future generations are inevitably faced with. This work cannot be delegated to a few individuals and organizations. All of us have a vested interest in sustainable and adequate pensions, and everyone must be encouraged to have the mindsets, skills and tools to pension plan now and in the future. This open access electronic textbook is designed to inform the learners' thinking about pension

design, governance and investment decisions to build a community or professional practice that can contribute to the long-term project of building sustainable and adequate pensions for all.

It can be used as a course resource, for communities of practices, and other self-organized learning groups involving citizens interested in contributing to building a pension system that will benefit the maximum number of citizens no matter their economic, political and social status. This open textbook platform will be eclectic, and a living resource will evolve to respond to new developments, data and information and emerging challenges.

Global Pension Assets Study (2018)

Download the PDF file and review the latest [Global Report on Pension](#).

This study by Willis Towers Watson (2018) examines 22 major pension markets (the P22) that totals USD 41,355 billion in pension assets and accounts for 67% of the GDP of these economies. The study analyzes the seven largest markets (the P7) including Australia, Canada, Japan, Netherlands, UK, and US that comprises 91% of the total pension assets.

Exercises

TOPIC REVIEW

1. Global Longevity Trends
2. Canadian Longevity Trends
3. Major Financial Decisions in an Individual's Lifetime
4. Defined Benefit Pension Plans
5. Defined Contribution Plans
6. Deaccumulation

Exercises

SAMPLE REVIEW QUESTIONS

1. What are the global and Canadian longevity trends? How do they impact long term financial planning?
2. What are global trends in pension asset ownership? Summarize key findings.
3. How is rationality visualized in financial decisions? Assess how they apply to the management of pension assets.
4. What are defined benefit and defined contribution pension plans? Explain.
5. What is the DGI framework? Explain with examples the inter dependencies between design; governance and investments of pension assets.

TOPIC 2 : GATHERING STORIES AND OTHER ACTIVITIES

Rajeeva Sinha

In this topic you will complete the following four activities before taking up the discussion in the Modules. These activities will refresh some key concepts and provide the context for the discussion of the DGI framework for pension management.

ACTIVITY 1: Interview About Pensions & Retirement – Reflections & Expectations

Before you read and discuss rest of topics in the modules, you should interview one person who is retired or is contemplating retirement. The purpose of this activity is to help you connect with the issues and challenges of old age financial security. The conversation will provide a context for the analysis of the various topics in this eText. This conversation activity is primarily a listening project. To understand what good listening is read this white paper by Zenger and Folkman (2016); [‘What Good Listeners Actually Do’](#)

By engaging in this exercise of gathering stories about retirement, you will connect with the challenges individuals and societies face in providing for their pensions. This story gathering exercise will have three potential benefits. One, by engaging in this experiential learning task, you will develop a more encompassing and empathetic view of the challenges faced by individuals in saving for their retirement through their working lives. This will contribute to the development of professional skills important to a financial adviser or financial services provider. Second, it will also benefit you personally as you will develop a better appreciation of the challenges to old age financial security. Finally, a closer engagement of the current generation of potential finance professionals through this exercise will help connect you with the reported experience by retirees and potential retirees of the effects which long term financial decisions have on achieving retirement goals. For many amongst you, the long-term consequences are too distant to be as salient as achieving immediate term financial goals. Therefore, the decisions that are taken about the long-term such as old age financial security are deferred.

For pension and retirement decisions that meet the criteria of inter generational fairness and to create a proactive environment for innovative solutions, it is important that young adults who are about to enter the labor market connect with the issues and challenges facing pension and retirement. From your perspective retirement is in the distant future you may assume that pensioner’s concerns are not your immediate concerns, except maybe as a potential professional in

the money management industry. Your more immediate financial concerns may be paying for your education and getting your first job. With rising longevity of financing old age has become a critical concern for individuals and society. However, of equal concern is that these long-term decisions are taken in a manner that distributes the costs and benefits of such decisions in a fair and equitable manner between the current generations of workers and retirees and the generations yet to be born. This is termed as the concern for intergenerational **equity**. If young adults continue with their attitude that financing retirement and long-term healthcare is not their priority, decisions on these important concerns will be taken such that it will shift the burden of financing current retirement costs to later generations.

The prospect of unfair sharing of the costs of retirement and long-term healthcare between generations is compounded by labor market changes that increasingly affect new entrants to the workforce today. Emerging data suggests that current entrants to the workforce are more likely to be working in jobs in what has been called the “[Gig Economy](#),” which do not provide for workplace and retirement benefits. With an aging population, they are also likely to be further burdened with the retirement costs of the current retirees. Lack of resources to save in the present coupled with the inability to benefit from compounding because of frequent changes in employment and a growing share of jobs in the gig economy, translates into new and unique challenges to retirement security of recent entrants to the labour market.

This exercise of gathering stories of retirement through one-on-one interviews is aimed at establishing this connection and the engagement with retirement issues and challenges. Previous experiences of readers of this e-text that have completed this exercise suggest that the gathering of stories have enabled them as upcoming finance professionals, to engage with the issues of the day as an insider and no longer remain an outsider looking in. Therefore, this exercise should be undertaken with commitment and involvement.

This exercise will be completed in two steps¹:

Step 1:

Interview one individual who you know is either retired or contemplating retirement. Contribute your story as a post on the Discussion Forum under the thread ‘Gathering Stories’. When submitting your story remove any specific details such as their name and any other identifiable information.

Examples of Stories:

Some examples of stories that have been reported in the popular press can be found in the links/folders listed below:

- [Baby Boomers Share Their Biggest Retirement Planning Regrets](#)

1. The details on the exercise are for illustrative purposes. When conducting this exercise in a class or curriculum setting, instructor should check with their ethics approval process what protocols to follow.

<http://www.businessinsider.com/3-peoples-stories-of-how-they-messed-up-while-planning-for-retirement-2012-8>

- Welcome to Retirement: Who am I now?

<https://hbswk.hbs.edu/item/welcome-to-retirement-who-am-i-now>

In addition to the reading by Zenger and Folkman (2016), cited above, you may draw inspiration for this assignment by visiting [Story Corps](#), whose mission is to build connections by sharing each other's stories. It also has tips on how to engage other people in a conversation.

Sample Questions that you may begin with:

- What does retirement mean to you?
- When and how will you retire?
- What are your challenges in implementing your plans for retirement?

Examples of questions/comments to keep your interview going:

- Tell me what you mean when you use that word.
- Explain the comment/observation you made for me
- Can you give an example to illustrate that comment/observation?

Caution: You should never offer your opinion about the interviewees reflections and under no circumstances any investment related advice should be volunteered. As in Canada, most countries have regulations and laws that only permit licensed finance professionals to offer financial advice.

IMPORTANT

(See Appendix A Suggested Rubric included at the end of this topic)

Step 2:

Reflect on the story that you gathered. What are your observations after having completed the interview? Also assess how the stories you gathered reflect the Canadian experience. To be able to compare with the Canadian experience, a report based on surveys of nearly a thousand Canadians was recently released (Baldwin, 2017). This report raises several important questions about the design, governance and investment decisions of pension plans. Study the report, [The Pensions Canadians Want: The Results of a National Survey](#), and decide how the stories you gathered reflect the broader Canadian experience.

Completing these two steps sets the stage for you to begin to think how to manage pension finance in original and innovative ways.

ACTIVITY 2: Review the Latest Global Report on Pension Assets

The Global Report on Pension Assets is an annual document that presents a cross country global perspective on pension assets. It will be useful to browse through this report to provide a context for the DGI framework of pension management that we discuss in the next three modules.

After a close read of the [Global Report on Pension Assets](#), answer the following questions:

1. What is the size and distribution of the assets attributed to pensions and retirement financing?
2. In terms of asset allocation what is the fastest growing asset class. Explain why?
3. What explains the differences in pension asset allocations in the prominent economies of the world?
4. Which is the share of defined contribution and defined benefit plans in the pensions systems of the different countries? What explains these choices of pension design?

ACTIVITY 3: Time Value of Money & Pensions

Time Value of Money, a topic that you covered in your introductory finance course, is a very useful organizing framework that is central to financial decisions. It is important we understand how it can be applied to standard retirement decisions and what are the the data challenges and implicit assumptions that underpin such decisions. This will serve as a benchmark to compare real life decisions on retirement and old age financial security.

These questions are adapted from Brealey et al. (2016) *Fundamentals of Corporate Finance* 6th Ed. You can find similar questions in any introductory text in finance used in a Finance 101 course.

In these problem statements there is no information about the assumptions or source of the numerical values. As you work through these questions ask what do you need to know to be able to arrive at these numerical values? What are the assumptions you make? What is the basis of these assumptions.

A complete answer for the pension course will require not only a numerical solution but also a comprehensive assessment of the assumptions underpinning the number values and the theoretical or logical basis of those assumptions. For example, in your computations you could comment on the validity of the numbers based on your understanding of monetary policy; inflation trends; history of returns and volatility of stock market returns; longevity trend tables, etc.

Problem Statements:

1. Aarti would like to retire in 25 years. Her goal is an annual real income of \$48,000, paid at the end of each month of their expected 20-year retirement and to leave behind \$250,000, in real dollars, to her son. Her son will begin his university in 5 years and her intention is to support him for 4 years by paying his university fees of \$10,000 real dollars per year, due at the start of each year. She has a mortgage balance of \$250,000. She has a 25-year

Canadian mortgage with an annual interest rate of 4.8%. She expects to live in her house for the rest of her retirement. The house value is likely to appreciate 3% annually, same as the inflation rate. The nominal rate of return on savings and investments is around 6%. Based on the above description calculate the monthly savings rate. Clearly state any assumptions included in the calculations.

3. Richard upon retirement after 30 years of employment has a savings of \$180,000. His house is fully paid off. His workplace pension is a defined benefit plan. His accrued benefits are 1.75% of the best average 5 years of his annual salary (calculated in his case to be \$72,500 per annum) multiplied by the number of years of service up to a maximum of 35 years. His house will be a passing away gift to his son. He has accumulated savings of \$180,000, conservatively invested. He is a widower; his wife having passed away 3 years ago. His lifestyle choices are relatively modest. However, he will like to travel if he could. He will like to plan his retirement with conservative assumptions about financial returns and inflation. What advice do you have for Mr. Richard? Advise and prepare a financial plan for him based on his choices and expectations into his retirement.

4. Jeff's plan is to retire in 35 years and want to accumulate enough by then to have \$36,000 per year for 20 years. What funds must be available to finance this retirement? What can be assumed about the market rate of return? What must Jeff save annually between now and the time of retirement? What should be his assumptions about inflation; longevity and how will these impact his decisions?

You can use resources from the following websites to formulate your assumptions :

[Service Canada Information on OAS & CPP](#)

[Statistics Canada](#)

REFLECTION QUESTIONS:

1. What are the assumptions implicit in your calculations?
2. How do you arrive at the data?
3. What do your calculations and analysis of assumptions say about pension design?

ACTIVITY 4: Towards Better Capitalism

This is the final recommended activity. In this round table, prominent CEOs; investment bankers and economists discuss the challenges to investing with a long term vision. This is an important

concern for funded pension plans. Sustainable pension plans cannot be based with sole reliance on arbitrage opportunities and transaction based approach to asset management. The round table is a useful introduction to long term asset management.



A YouTube element has been excluded from this version of the text. You can view it online here: <https://ecampusontario.pressbooks.pub/pensionfinance/?p=489>

1. View the discussion in the video above.
2. What is meant by fiduciary duty? Why does focusing on long term more closely aligned with fiduciary responsibility according to the head of the Washington State Investment Board.
3. Profits as a percentage of GDP is going up and Wages as percentage of GDP is going down. What does it mean for long term investment?
4. Stiglitz asserts that there is evidence to show that focusing on the long-term makes the economy more efficient. Mark of E&Y that the real value of the company is in its intangibles and not quarterly earnings. So why do asset managers continue to focus on the short-term earnings data in their decisions to buy or sell a company?
5. Mark of E&Y makes refers to Data Analytics and how it is enabling his firm to track intangibles within his firm (13:17). How can block chains in asset management help in shifting the emphasis from the period of reporting to what you report as an indicator financial performance.
6. How does shifting the emphasis to what you report (intangibles; strategy and other non-financial metrics) compare with a focus on short term earnings as a prerequisite to long term focus as suggested by Carlos the Renault CEO and the introduction of loyalty shares as suggested by Stiglitz?

7. Can a more enlightened interpretation of fiduciary responsibility of ensure a focus on long term and move away from financial metrics?

APPENDIX A: Suggested Rubric for the Assessment of Stories

Items	Marks out of 10
Conduct interview and post the story in the a discussion forum	3
How did you approach the individual? How did you lay the groundwork or explain the context of your interview?	2
What questions did you put forward in the conversation?	2
<p>Critical reflection:</p> <ul style="list-style-type: none"> • What did you take from this interaction? • What challenged you in this conversation? • What felt relevant/helpful/revealing in this conversation? • Is there something that you are still thinking about from the conversation? • Is there something you want to talk about if you had a chance to repeat this interaction with the same person or with a different person? 	3
Bonus points for something we did not think about but was a great part of the story!!	2

MODULE 1 DESIGN

TOPIC 1: THE WORLD BANK'S FIVE PILLAR FRAMEWORK

Rajeeva Sinha

Learning Objectives

After reading this topic, you should be able to answer these questions:

- What is a pension system and a pension plan?
- What are the 'five pillars' of a pension system?
- What are the process criteria for national pension system reform?
- What are the 'pillars' of the Canadian Pension System?
- What explains the emphasis on the five pillars in a national pension system?

Data on pension assets from different countries reported in the [Global Pension Asset Study](#), show that the share of assets under management under different occupational pension designs differ significantly, between countries. Countries like Canada, Netherlands and Japan have more than 90% of their pension assets under defined benefit plans. Other countries have less, with the US having 40% and Australia only 13% of its pension assets under defined benefit plans. What explains this variation in assets in different types of pension plans? How does society provide for old persons who never participate formally in the paid work force, not necessarily, because they are unwilling to work, but more likely because they participate in unpaid work in the family; family businesses or farms where their contribution is never formally monetized and paid as wages? How do societies choose to provide for the post working years of different segments of the population who either because of the form of their participation in the labour market or because of lack of skill sets or some health-related issues or being unable to find employment, do not have an occupational pension? These are some of the questions that will be discussed in this topic, and a framework developed to explain pension system design.

Explore

The World Bank's (2005) [Pension Reform Primer](#) is a useful resource for updates on country experiences and also as a toolkit for the design and implementation of pension reform. Explore the resource at: <https://openknowledge.worldbank.org/handle/10986/11241?show=full>

The World Bank's (2008) [Five Pillar Framework](#) is a conceptual overview of national pension

systems around the world. A national pension system is the set of plans that together constitute a nation's approach to old age financial security. The various pension plans for the provisioning of old age financial security in different countries can be broadly classified into five groups or pillars, depending on their funding mode and target population. Thus, at a conceptual level the five pillars together constitute a pension system and the individual pillars are the different pension plans or designs.

The generic characteristics of the five pillars are summarized in Table 2. The five pillars can be classified into two categories depending on their financing mode. One category of financing is called 'pay-as-you go' or **PAYGO** (hence unfunded) and the other group of pillars falls under the **asset based** or funded category. For example, the programs under pillars 0 & 1 are unfunded and under the PAYGO category and pillars 2 & 3 are under the funded category. This means that promises and payout of programs under pillars 0 & 1 are not accumulating savings or have assets in place but are financed out of the current tax revenues. Pillars 2 & 3, in contrast, have savings being accumulated and invested or have assets in place for future payouts. Pillar 4 is of specific interest given the increasing longevity. Labour market changes will be necessary to reflect the new normal for retirement where older workers may seek to combine their retirement with limited hours of paid work. Similar flexibility in work place may be required in workplace practices for the so-called sandwich generation with the dual responsibilities of caring for aging family members (parents) and bring up children.

Table 2
The Five Pillars of Modern Retirement Systems

Pillar	Essential Characteristics
Pillar 0	Non-contributory minimal assistance to the poor, typically means-tested
Pillar 1	Public (government) pension (social security) schemes to provide for basic needs; contributory, redistributive, and typically financed on a pay-as-you-go basis
Pillar 2	Private occupational pension schemes (sponsored by employers) to supplement Pillar 1; can be voluntary or mandatory (i.e., required by the state); and can comprise defined benefit (DB) or defined contribution (DC) plans
Pillar 3	Individual savings to provide for future withdrawals and/or annuities in various forms; can be voluntary, but often enforced by the state
Pillar 4	A set of labour market policies to extend work life and enable more part-time work for the formally retired; informal family support as additional dimension

Note. Adapted from [World Economic Forum \(2013\)](#).

The Five Pillar Framework is the template that the World Bank uses for recommendations regarding reform of country-wide pension systems. The template allows for the bench marking and identification of the future structure and emphasis of a nation's national pension system. It begins with the identification of the initial conditions and concludes with comments on the reform process. Thus it identifies a framework that can be applied to assess the existing state of a national pension system and proposals for how to move the pension reform process. The World Bank

Pension Conceptual Framework (2008) states: “A major emphasis should be given to the process of pension reform, including what are commonly termed the political economy aspects (p.6).

The World Bank’s Pension Primer identifies three relevant process criteria for pension: 1) a long-term, credible commitment by the government; 2) local buy-in and leadership; and 3) sufficient capacity building and support for implementation arrangements. The descriptions of these criteria are summarized below in Table 3.

Criteria	Description of Reform
A long-term, credible commitment by the government	<ul style="list-style-type: none"> • Aligned with the political economy of the country and supported by a clear political mandate • Political conditions for implementation of the reform needs to be sufficiently stable to provide a reasonable likelihood for a full implementation and maturation of the reform
Local buy-in and leadership	<ul style="list-style-type: none"> • Includes credibility with the population at large • Politicians and technicians of the country prepares for pension reform, and communicates to the population at large to gain acceptance
Sufficient capacity building and support for implementation arrangements	<ul style="list-style-type: none"> • May include, reforms in governance, the collection of contributions, record keeping, client information, asset management, regulation and supervision, and benefit disbursement. • Initial establishment of a legal framework may need to be followed-up with extensive local capacity and institution building.

There are significant differences between countries in the relative emphasis on these pillars both in existing national pension systems and in the various proposals for their reform. For example, Grech (2017) compared state pension reforms in ten EU countries and found a range of variations in the pension reform process before and after the financial crisis in 2008. In Canada, the mix and emphasis of pension and retirement plans using a two by two matrix is enumerated in Table below. A detailed description of the individual plans in the Canadian pension system is discussed in a subsequent topic in this module. What drives these variations in emphasis on individual pillars in existing national pension systems and in the various proposals for reform?

Table 4	
<i>Two by Two Matrix of Pension Plans in Canada by Ownership/Governance and Funding</i>	
	CAPITAL FUNDED
PUBLIC	<ul style="list-style-type: none"> • Canada Pension Plan (CPP)
	PAY AS YOU GO (PAYGO)
	<ul style="list-style-type: none"> • Old Age Security (OAS) • Guaranteed Income Supplement (GIS) • Guaranteed Annual Income System (GAINS) – Specific to Ontarians
	<ul style="list-style-type: none"> • Individual (Employee) <ul style="list-style-type: none"> ◦ Registered Retirement Savings Plan (RRSP) ◦ Tax Free Savings Plans (TFSA)
PRIVATE	<ul style="list-style-type: none"> • Occupational (Employer/Employee) <ul style="list-style-type: none"> ◦ Defined Benefit (DB) ◦ Defined Contribution (DC) ◦ Pooled Registered Pension Plan (PRPP)

The Primer (World Bank, 2005) does not elaborate what motivates the emphasis on various pillars in a national pension system and what can motivate the pension reform process. . What influences the buy-in and the resolve of the leadership that results in different emphases in the pension systems around the world? Without this analytical insight into the variations in the emphasis on the different pillars in national pension systems in different countries, we cannot explain a country's existing pension system design and how it should respond to change or determine its objective for reform. In the absence of an analytical framework, expediency of asymmetrical vested interests will drive the pension reform process. Pension reforms will reflect the priorities of asymmetrical vested interests such as the financial services industry or the stakeholder groups who have a presence at the negotiation table at the expense of those who cannot lobby their interests or those who are unrepresented at the negotiation, such as young adults who vote less frequently or the future generations yet to be born. An analytical approach to existing and proposals for reform in national pension system design is a requirement for a long term commitment or a buy-in without which we cannot have a sustainable pension system design that represents all stakeholder groups.

An analytical approach to pension plan design and pension systems architecture will be developed next. The emphasis on the different pillars in different national pension systems is explained by

a detailed examination of the perspectives on rationality that drives our decisions; how we make intertemporal choice; and how social contracts motivate the rules of cooperation in a society.

EXERCISES

TOPIC REVIEW

1. Five Pillars of Pensions (World Bank)
2. World Bank's Process Criteria for Pension Reform
3. Pay as You Go
4. Canada Pension Plan (CPP)
5. Tax Free Savings Accounts (TFSA)
6. Registered Retirement Savings Plan (RRSP)
7. Old Age Security (OAS)
8. Guaranteed Income Supplement (GIS)
9. Defined Benefit Plans
10. Defined Contribution Plans
11. Pooled Registered Payment Plans

EXERCISES

SAMPLE REVIEW QUESTIONS

1. Distinguish between a pension plan and a pension system.
2. Pension systems in different countries can be mapped into 'five pillars' as proposed by the International Bank for Reconstruction & Development (IBRD). What are these five pillars? Map Canada's pension system into the 'five pillars' framework.
3. What is the process criteria recommended by the IBRD for pension system reform?

TOPIC 2: PENSIONS AS INTERTEMPORAL CHOICE

Rajeeva Sinha

Learning Objectives

After reading this topic, you should be able to answer these questions

- What is intertemporal choice?
- How are intertemporal choices made?
 - Classical rationality
 - Bounded rationality
 - Ecological rationality
- How do intertemporal choices impact pensions?

In the previous topic we learnt about the World Bank's 'five pillars' typology of national pension systems. The five pillar typology is the outcome of global overview of national pension systems. However, to have a consistent response to pension reform it is important that we develop a rationale about choices and emphasis that individual countries make in their pension plans and pension systems. Two constructs; intertemporal choice and rationality are central to the development of an analytical approach to pension plans and pension systems. We discuss these two concepts and explain their significance in this and the next topic in this module.

Conventional wisdom is that we start saving early to benefit from [compounding](#). Reality is that few of us have the discipline to work for a goal or an outcome that is 30 to 40 years away. Household data suggests that we are not saving enough today for our retirement needs in the future. [Canadian household indebtedness](#) is among the highest in the World. Household savings are low and indebtedness high in Canada (and other developed countries). With increasing life expectancy including for those in their 80s we can expect greater expenditures on old age care in the final years of their life (Schillington, 2016). This gap between savings expectations and behaviour is a global phenomenon with very significant consequences for old age financial security around the world. Intertemporal choice is central to our understanding of how we take long term decisions.

Intertemporal Choice

Pension decisions span the lifetime of an individual and have multi-generational implications for society and the economy. This class of decisions are called **intertemporal decisions**.

In economics, the study of decisions are required because of relative scarcity. Decisions or choices must be made because human wants (being expressions of ones thought processes) are unlimited, while resources required to meet them are relatively scarce or limited. This relative scarcity gives rise to opportunity cost. Choosing A implies that the limited resource cannot be used to meet choice B hence the potential gain from choosing B is the [opportunity cost](#) of meeting choice A. All choices, either in the short term or in the long term have opportunity costs.

Intertemporal choices are also made under a resource constraint and have an opportunity cost; however, we study them as a distinct category of choices. The primary reason for this is that the opportunity costs of intertemporal decisions can be deferred to the future or shifted to a different stakeholder. Policy level examples of intertemporal choice are saving for retirement, levels of public debt, or healthcare expenditure. For each of these policy choices there is a possibility of shifting the burden from the current generation to future generations and this raises serious concerns about intergenerational equity and sustainability of such policies. For example, if the active workforce does not save enough for their retirement, the future generation will be faced with the serious implications of having to provide for retirees out of their current earnings.

The management of this trade-off in intertemporal choice, as in pension decisions is growing in scope and complexity due to increasing human longevity, rising healthcare costs and changes in labour markets because of globalization and technology. We will explore the consequences of these in subsequent topics.

Not only do pension decisions have intertemporal implications, but they are also unique among the three most important financial decisions we make over a lifetime. The three major financial decisions that an individual has to take over a lifetime are education; the purchase of a house; and retirement. Unlike education and home purchasing decisions, the pension decision is the most challenging, as the order of cost and benefit are reversed. In the case of education and house buying, you can borrow under contracted terms to pay back the money and start enjoying the benefits almost immediately. Saving for retirement or provisioning for pensions, represents unique challenges to our decision capabilities as the costs or sacrifice of current consumption is known; voluntary and immediate. However, the reward or potential benefit of pensions in retirement is distant and uncertain as no one is sure of the length of their individual lifespan. The benefit and cost structure is flipped when compared with the other two long term financing decisions for education and house purchase.

Thus the pension the decision is complex. First, the decisions have intertemporal implications as the consequences of the decision can be shifted to future generations or other stakeholders . If the current workforce does not save enough from their current earnings, the workforce of the future will have to pay for your retirement from their current earnings. Second the cost of the savings is immediate and certain. Savings for retirement implies reduced consumption in the present. This

is entirely voluntary and unlike in the case of education or home purchase where the costs are contractual and cannot be deferred. However, future payoffs of savings are uncertain not only because financial returns are uncertain but also because longevity and future healthcare and old age requirements are unknown in the present.

How Do We Make Intertemporal Choices?

What are the challenges we face when we take an intertemporal decision? First, intertemporal decisions have implications that go beyond the current generation. Second, the implications of the decisions cannot be completely specified today with probabilities attached to these outcomes as in conventional uncertainty. Significant insights into intertemporal choice are provided by the different interpretations of rationality. We will discuss three of the more relevant interpretations of rationality. These are: classical, bounded and ecological concepts of rationality. **Classical rationality** is central to the economist's approach to intertemporal choices, emphasising the maximization of the utility from savings and consumption either from a lifetime of income or expected lifetime permanent income levels. The bounded rationality is grounded in the behavioural perspective and emphasizes the cognitive and computational limits of human decision capacity. The **ecological perspective** is based on evolutionary fitness. According to this view of rationality, the brain makes choices that are specific to every environment with the purpose of ensuring survival of the species. The focus is not on decision optimization or goal maximization but on survival.

Classical rationality

Economics & intertemporal choice – homo economicus

Economists have been interested in intertemporal choice behaviour in their attempt to explain the recurrence of **business cycles**. Business cycles are cycles of booms and busts that are characteristic of market economies and are apparently triggered by economy wide behaviour of savings and consumption. It was observed in the 1950s that contrary to the Keynesian hypothesis to explain booms and busts, consumption as a share of income does not fall and savings does not correspondingly increase with rising income. A few **different hypotheses** on how we make intertemporal choices, were proposed by economists, to explain how individuals allocate income between consumption and savings. We will not go into the details of the hypotheses as our focus is not the analysis of business cycles. Our interest is in the assumptions that economists make about the individual and the environment in which intertemporal choices or choices of consumption and savings are made over time, as these choices have implications for pension decisions.

Common to all hypotheses of the intertemporal choices between consumption and savings that have been proposed by economists is the assumption of **Homo Economicus**, or the figurative human being who is rational because they boost self-interest by utilizing all available information to maximize utility to attain the highest possible consumption or profit. Irrespective of the hypotheses, the economists view is that intertemporal choices involving trade-offs between consumption and savings are made with perfect foresight and the decision maker takes a computational approach that incorporates all relevant information into the decision. In all hypotheses of intertemporal choice, the economic decision maker (the consumer), is attributed with perfect foresight. The consumer

seeks to maximize satisfaction by comparing the marginal utilities of savings and consumption, trading one over the other to equalize the marginal utility from each (Fisher, 1930). Consumers form a subjective assessment of their permanent (life) income and consumption (Friedman, 1957); through smoothing their consumption by taking a lifecycle (young adult, middle & retirement years) view of their income (Modigliani, 1966).

A formulation of this rational computational approach is the time value of money that connects the **present value (PV)** with the expected **future value (FV)**. A fundamental tenet of the time value of money is that a dollar today is worth more than a dollar at some point of the future. The time value of money also provides us with an exact representation of the FV in terms of value today or PV in the discounted cash flow model:

$$PV = FV/(1+D)^t$$

Where D is the discount rate and t are the number of time periods. The rational economic decision maker can assign a discount rate for the future dollar for a specific period, which may be a week, a month or a year. This discount rate is applied to the expected future value and goes up exponentially for every period the future is deferred. The expression gives us a very calibrated and exact value of future dollars in terms of present dollars. Thus, the expression can be used to work out the equivalence between consumption and savings to the last (marginal dollar). In addition to the assumptions about the cognitive and computational capabilities of the decision maker and the relevance and completeness of the information available, there are important assumptions made about the discount rate used to calculate the equivalence between the present and the future. The decision maker, according to economics, assumes **exponential discounting**. The discount rate captures both the waiting or the extent to which consumption of the income is deferred or postponed as well as the risk or uncertainty of the future expected payoff or cash flow. Thus, the expected future value may not be what it is expected to be. The exponential discount rate is constant per period and is not sensitive to the extent of the separation between the present and the future. Therefore, the future value is discounted at a constant rate irrespective of how far it is in the future. So, a year difference between PV & FV, for example between 2017-2018, will attract the same discount rate as a year difference twenty year from now, that is 2027 -2028. The discount rate applied to a decision outcome for 2027-2028 will be higher than the discount rate applied to a decision outcome in 2017-2018.

Bounded Rationality

Insights from psychology have also been used to explain intertemporal choice in behavioural economics/finance. Behavioural economics does not question the pursuit of the goal of greater satisfaction by the figurative economic decision maker – the homo economicus. However, the bounded rationality, is approach, as distinct from classical rationality acknowledges cognitive and computational limits of the economic decision maker. The decision maker's rationality is 'bounded' by the biases and procedures used in the implementation of the decision. The economic decision maker in behavioural economics pursues '**satisficing**' and not maximizing behaviour. Satisficing implies the pursuit of greater satisfaction but given the cognitive and computational limits it is recognized that a decision will not likely result in maximum satisfaction.

Behavioural economics proposes several alternative frames and benchmarks that have implications for intertemporal choices between consumption and savings. Some of the relevant alternative frames and benchmarks in behavioural economics/finance that are useful in understanding intertemporal decision behaviour are discussed next.

Hyperbolic versus exponential discounting

According to behavioural economics experimental evidence shows that the intertemporal decision maker uses [hyperbolic discounting](#) and not exponential discounting in working out the equivalence between present value and future value. What this means is that we tend to apply a larger discount rate to decisions with payoffs in the nearer term, while we apply a smaller discount rate as the payoff gets farther away. The discount rate increases at a decreasing rate, rather than increasing at a constant rate, as in exponential discounting. Hyperbolic discounting is modeled as follows:

$$V = A/(1+kt)$$

Where V is the value of the reward, A is the reward amount, t is the delay, and k is a discount parameter accounting for the slope.

Commitment, reward magnitude and attention

Some important concepts from behavioural economics that help us understand intertemporal choices and decision behaviour are commitment, reward magnitude, and attention. **Commitment** refers to the use of external devices that force the individual to choose the delayed option. **Reward Magnitude** refers to the impact that the size of the delayed reward has on one's decision as to accept it or not. Logically, only the relative size of the immediate and delayed reward should matter. If the choice was whether to take \$5 now or \$20 in a month, and the person chooses \$5 now, we might expect a person to make the same decision as if the choice were between \$500,000 now or \$2,000,000 in a month. However, research (ref) indicates that people are more careful in decision making when large sums of money are involved. A person is more likely to wait for one month to take the \$2,000,000 than the \$500,000 now. Therefore, it appears that the absolute magnitude of rewards is important in intertemporal decision making. Attention has a role in intertemporal choices and has yielded some interesting results. When attention is drawn to the subject of the decision, people tend to take the immediate rewards over the delayed option. When the immediate reward is hidden, people will wait much longer for a delayed reward. This view of human rationality was recognized in the [2017 Nobel Prize in Economics](#) awarded to Richard H. Thaler, a behavioral economist at the University of Chicago, IL, USA. It has led to many recommendations or "[nudges](#)," on how to change human decision behaviour including some which are relevant to pension planning (Thaler & Sunstein, 2008).

[Organ donation program](#). How does it help design retirement policy?

Ecological Rationality

The neuroscientific approach to intertemporal decision analysis is based on the findings and analysis in biology. According to neuroscience, decisions and choices are guided by ecological rationality. We follow Stevens (2010) use of the term ecological rationality as behaviour that is consistent with evolutionary fitness that is decision behaviour which promotes the survival of species. **Ecological rationality** requires decisions to be consistent with the *evolutionary fitness* of the decision maker. **Evolutionary fitness** is the success of the species to survive and reproduce in an environment. Whether a species is successful or not in its survival enterprise cannot be assessed by the optimality, or the maximization of the outcome of a decision, as in classical rationality. According to ecological rationality, no decision can be evaluated independent of the environment or the context of the decision. In ecological rationality the decisions are rational if they entail the wise selection of decision strategies that fit specific environmental attributes and thus promote the long-term survival and reproduction of a species in the context of the environment where it belongs. The very same outcome may be ecologically rational or irrational depending on the environment. The focus of ecological rationality is on the environment and the process of decision making and not on the decision outcomes.

These insights have implications for decision making beyond biology. At a more generic level, according to Mata, Pachur, von Helversen, Hertwig, Rieskamp, & Schooler (2012), decisions consistent with ecological rationality have three tenets. First, decision strategies are adapted to particular environments. Second, decision strategies are not good or bad per se, but have to be evaluated relative to the environment in which they are used. Finally, the decision maker responds to task and environment characteristics in formulating a decision strategy.

Of the three interpretations of rationality that we have discussed here only ecological rationality has been corroborated by evidence from direct observation of human behaviour. Classical rationality is based on deductive logic as a construct of homo economicus. Behavioural rationality on the other hand relies on indirect evidence from experiments. Neurobiology studies based on direct observation of cerebral activity using imagery tools like fMRI have revealed several key insights into human decision behaviour. The evidence from direct observation of the brain lends support to a process theory of human decision making where decisions are made based on anticipations like expectancy, fear etc., and a result of various emotional reactions to outcomes such as elation, regret, and envy (Bossaerts, 2009). Imaging experiments show that decisions are the result of a process and not exclusively goal driven. Thus, for a decision, different outcomes may emerge depending upon the triggers in the environment. Evidence from neurobiology and brain research also suggests that the sensitivity of decision differences in utility is greater when it is difficult to predict the consequences of the decisions in precise terms, as in financial decisions. Studies also find evidence that human brains are good at strategic decisions but not at incorporating mathematical computations in their decision-making processes. These findings are more consistent with ecological rationality and not with assumptions of classical or bounded rationality. In a goal maximizing framework, differences in expected utility and experienced utility are dependent on what the individual decides. However, in a neurobiological approach, the differences in expected

utility and experienced utility is not a function of the individual's decision but dependent on what others decide.

The neurobiological studies of decision behaviour have important implications for intertemporal decisions. First, the bounded rationality that we observe may be an adaptive strategy not a cognitive outcome. When faced with intertemporal choices in complex and changing financial environments the appropriate response would be to evolve heuristics or simple decision-making rules than to implement optimum solutions requiring complete information. Second, the evidence from neurobiology is that emotions play a central role in decision making. Superior decisions are made when emotions guide reasoned choices compared to decisions made purely on reason. Another important finding that emerges from the neurological evaluation of choices and decision-making is that choices have a social context. Risk aversion changes depending upon what other people around you do. Social context as an attribute of the environment has important implications for choices and decision making.

These evidenced based findings, based on direct observations of neural processes in the brain, are quite relevant for long-term decisions such as savings for retirement. In his [BBC podcast on savings](#) (18:00), economist Dan Ariely (2018) makes a strong reference to the role of the environment in our savings behaviour (listen to the podcast for an overview of these ideas in the context of our ability to save for retirement). Ariely contends that the quarterly earnings performance monitoring of corporates and the preference of time with family for immediate gratification (such as gifts, holidays, etc.) creates an environment that mitigates against saving for long-term goals like retirement and overshadows long-term interests like buying life insurance to protect the family.

In designing a pension system, the mix and emphasis on the World Bank's pillars should incorporate considerations of environmental fitness as recommended by ecological rationality. A pension system that is consistent with ecological rationality will have a greater impact on "survival" into retirement. Financial literacy programs and pension plans that focus on individual choice and responsibility have a poor prognosis in an environment that focuses on quarterly performance and immediate gratification in corporate and personal interactions. Given the rise of income inequality, the viability of a pension system in providing for rising longevity will depend more on mandatory universally funded plan designs. This will be consistent with ecological rationality and environmental fitness. We will discuss this in greater detail in the topic on operational aspects of pension design.

The ecological view of rationality moves the locus of decisions from the individual to the group and then to a collective. The rationality is expressed in terms of environmental fitness as measured by the survival of the group and its ability to successfully adapt to changes in the environment. So, are we individualists, or what has been termed as prosocial decision makers? Is the goal of a decision to maximize individual self-interest, or are we more likely to seek a balance between self-fulfillment and sharing with others in our quest for collective survival? Is there an intrinsic role for fairness and justice in our decision-making behaviour, or are these attributes an imposition that seeks to curtail our pursuit of self-interest?

Pension decisions are intertemporal decisions. They have multigenerational implications that cannot be specified today. Ecological rationality with its focus on collective outcomes like survival is distinct from classical and bounded rationality as the trade offs between the current and the future goes beyond a lifetime perspective. Decisions involving intertemporal choice have acquired a growing urgency in the context of today's challenges. For an overview and an insight into discounted cash flow analysis; the classical and bounded rationality decision rule read: [The Perils of Short-Termism: Civilization's Greatest Threat](#).

So what do we make of these different interpretations of rationality? As reiterated earlier, the three different interpretations of rationality are not mutually exclusive. We will learn in this module that ecological rationality will provide valuable insights into the design of pension systems. Classical and bounded rationality will be valuable in the design of individual pension plans within a pension system.

Next, we will explore social contracts that provide the context for the incorporation of our decision behaviour to the design of pension systems and pension plans.

Exercises

TOPIC REVIEW

1. Classical rationality
2. Bounded rationality
3. Ecological rationality
4. Intertemporal Choices
5. Exponential Discounting
6. Hyperbolic Discounting
7. "Nudges"

Exercises

SAMPLE REVIEW QUESTIONS

1. What is choice? Why are we required to make choices?
2. What is intertemporal choice? Why do we need to study intertemporal choice?
3. The three major financial decisions in a person's life are financing education; home and retirement. What is special about pension decisions? Are pension decisions an example of intertemporal choice?
4. How is rationality interpreted in decision behaviour? Are these interpretations of rationality mutually exclusive?
5. Discuss and apply the three versions of decision rationality to pension decisions.

TOPIC 3: SOCIAL CONTRACTS AND PENSION DESIGN

Rajeeva Sinha

Learning Objectives

At the end of this topic, you should be able to answer these questions:

- How is value created through co-operation shared under
 - Classical rationality
 - Bounded rationality
 - Ecological rationality
- What are social contracts?
- What is the relationship between national pension system design or the five pillars framework of pensions and social contract?
- What are the sources of variation in national pension system design?

A harmonious society creates value through cooperation and devises arrangements for how it is shared. Division of labor and the process of specialization in a society creates a growing mutual dependence among its constituent individuals and groups. Humans are social beings; hence this mutual dependence is not just economic but also psychological and social. The value that is created through our co-operative relationships is greater than the arithmetic sum of the value created through our individual efforts. The enhanced value created through co-operation requires the setting up of rules of sharing that is considered 'fair' by the co-operating groups. The perception of 'fairness' is a prerequisite for the sustainability of co-operating relationships in a society. Plato, in his book *The Republic*, noted that concepts of justice and injustice emerge when we enter into this arrangement of mutual interdependence. Social justice requires "giving every man his due." However, determining what 'every man's due', poses a challenge in operationalizing and implementation.

Social Contracts

A social contract is an implicit contract between members of a society that lays down the terms of co-operation and 'fair' sharing of the value created. In the next few paragraphs we will examine

how the different interpretations of rationality allocate the ‘fair’ share of value created through co-operation.

Classical & Bounded Rationality

In the topic on intertemporal choice we learnt about three interpretations of human rationality. Classical & Bounded rationality with their focus on pursuit of self-interest and ecological rationality as the other view with its focus on collective survival or well being are two perspectives of decision-making behavior. Both these perspectives can be applied to the sharing of value created through cooperation in social contracts. Li and Tracer (2017), in their comprehensive survey of the literature on decision-making behavior, makes a distinction between “selfishness axiom” which underpins classical and bounded rationality and pro social decision behavior that forms the basis of ecological rationality .

Proponents of the selfishness axiom take an individualistic perspective on survival and argue that in the quest for survival and reproductive success “individuals are expected to behave in their own selfish interests” (Krebs & Davis, 1981, p.22). Similar sentiments are expressed by Richard Dawkins (1976) in his book, the *Selfish Gene*. With its focus on the maximization of self-interest, the selfishness axiom considers sharing of value created as a default outcome realized by the universal pursuit of self-interest. The selfishness axiom is central to classical and bounded rationality. Classical rationality has a very specific view of the social environment. The social environment is seen as the aggregated outcome of independent rational actors’ decisions aimed at the maximization of self-interest. The actors have complete information and the capacity to act unencumbered by the social environment and relationships (Dixon & Hyde, 2003). The social good is achieved by the realization of self-interest of individual decision makers. Sharing of value created is achieved by the terms of exchange (prices) agreed upon between the contracting parties. As Adam Smith (1776) wrote quite vividly:

It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages (Smith, 1776)

Remarkably, some 17 years before he wrote *The Wealth of Nations*, none other than Adam Smith recognized, in *The Theory of Moral Sentiments*, the essentialness of fairness, equity, and justice to the maintenance of the social order: “All men...abhor fraud, perfidy, and injustice and delight to see them punished...few men have reflected upon the necessity of justice to the existence of society”

Bounded rationality does not disagree with the goal of the pursuit of self-interest and exchange value (price) as the basis of the sharing of value created. What bounded rationality seeks is the recognition of our limited computational and information assimilation capabilities and the role of emotions in the pursuit of self-interest. Analytically, the basis of co-operation or social contracts and the sharing of value created in both classical and bounded rationality is the same.

The view that the social good is the outcome of pursuit of individual self-interest is difficult to incorporate in intertemporal decisions like pensions. Given the focus of classical and bounded

rationality on the pursuit of self-interest the long term in these interpretations of rationality will be the lifetime of the individual. As we learnt in the previous topic, intertemporal decisions on the other hand have multi-generational horizons and the outcomes are not completely specified in the present. Intertemporal decisions are distinct from long term decisions. In long term decisions the outcomes and the probability that can be attached are known. In intertemporal decisions the outcomes are yet to be fully identified as they are dependent on future scenarios; stakeholders are yet to be born or the existing relationships do not give them a say in the decision. Examples of the latter could be rooted in economic, age or gender based inequities, and hence unable to bargain or negotiate their self-interest. Thus the full implications of an uncertainty are not just the case of an externality or the failure to capture a social good but the case of a social good that is poorly identified and with stakeholders who will bear the cost of the decisions not able to bargain their self-interest.

Ecological Rationality

In ecological rationality, sharing of value created through co-operative behavior is motivated by what has been called '[prosocial behavior](#)'. Prosocial behavior is behavior or decisions taken to benefit society as a whole. It is not altruism. Such behavior may be motivated by [empathy](#) and by concern about the welfare and rights of others as well as for egoistic or practical concerns, such as one's social status or reputation, hope for direct or indirect [reciprocity](#), or adherence to one's perceived system of fairness (Eisenberg, Fabes, & Spinrad, 2007). The prosocial perspective of human decision-making behavior is based on studies drawn from several distinct research domains and different disciplines such as anthropology, neurological sciences, human genetics, evolutionary psychology, and experimental and behavioral economics. What is distinctive about these theories and models of human nature is that they are based on evidence gathered either through experiments or direct observation of the neural processes in the brain using three-dimensional imaging techniques. The table below is a summary of the findings of some of the disciplines that have analyzed and gathered evidence on prosocial behavior in their study of the the science of human decisions and nature.

<p>Table 5 <i>Summary of Findings on the Science of Human Nature From Different Disciplines</i></p>

DISCIPLINE	PRINCIPAL FINDINGS ON HUMAN NATURE
Anthropology	Widespread cooperation, collective decision making, political coalitions, resistance to power and dominance, formal rights and obligations (rules and laws), governance processes, social sanctions, and reciprocity and a sense of fairness or equity (Brown, 1991) based on Human Relations Area Files
Neurosciences	The human brain has a moral sense; wired to behave ethically (Gazzaniga, 2005 ; Greene, 2007)
Human Genetics	Evidence for altruism; nurturance & empathy with significant variations
Evolutionary Psychology	Evidence on social exchange or reciprocity and fairness, not only in adults but in children
Experimental & Behavioral Economics	Strong reciprocity as an explanation of 'fairness' and altruistic behavior

Note. Adapted from Corning (2015).

Taking a collective perspective on evolutionary success and survival, several lines of research suggest that pro-social behavior evolved in the ecological context of the pressure to stabilize cooperative groups, which in turn were critical to our evolution into humans (Yoder & Decety, 2018). Thus pro-social behavior is central to our survival. Further experimental research over the ensuing 25 years has confirmed that only in a minority of cases do humans act as self-interested maximizers of personal gain. Recent studies into the neural basis for pro-social behaviors, show that generosity or fair-minded play in games, and punishment behavior, activates reward centers in the brain (Buckholtz & Marois, 2012; Fehr & Camerer, 2007).

The science of human nature shows that a more nuanced interpretation of human rationality is one that is guided by considerations of social justice and fairness. However, fairness as a motivation of human decisions is restricted by the group level or parochial altruism, individual, and biological traits. We are just by nature, but our sense of fairness has a parochial attribute as it does not transcend group identity. Our fairness is “malleable” as our specific choices are shaped by the immediate context, personal experiences, and self-interest, and experience. We will often rationalize our rejection of what is fair to others. Our fairness is also conditioned by biological traits, and may show individual variation. Thus, we have an emerging vision of rationality as ecological that is conditioned by individual/group self-interests and limitations in cognitive and computational capabilities (Corning, 2015).

The evidence on prosocial behavior establish the significance of cooperation and the central role of fairness, equity and justice for decision making. The next step is to examine how the rewards of cooperative behavior can be allocated to ensure a sustainable social contract.

'Fair' Share of Value

Using insights from the science of human nature and ecological rationality Corning (2011) proposes the concept of a **biosocial contract**, that provides a substantive and implementable construct of what is 'fair'. A biosocial contract is about the rights and duties of all the stakeholders in society, both among themselves and in relation to the "state." It is about defining what constitutes a "fair society." It is a normative theory, but it is built on an empirical foundation.

The biosocial contract is made up of three normative components, also called the fairness precepts:

- **Equality** – the distribution to each according to their basic needs;
- **Equity** – surpluses beyond the provisioning of our basic needs must be distributed according to merit; and
- **Reciprocity** – each of us is engaged in the co-operative venture to the collective survival enterprise contributes proportionately according to our abilities.

SOCIAL CONTRACTS

Corning's identification of social contract and its importance in the design of national pension systems is also mirrored in work by other social scientists and publications by organizations like the International Labour Organization (ILO) and Quebec's Report on Retirement System

The work of Hyde and Shand (2003) on pensions design, though unrelated, is analogous to Corning's biosocial contract. Though they do not specifically discuss the concept of social contract in their work, Corning's first two fairness precepts, "equality" and "equity" are supported by Hyde and Shand pension design principles of "need," "desert," and "reciprocity."

Hyde and Shand's (2003) first principle, need, is described as a minimum safety net and resonates with Corning's fairness precept of equality, which is the collective obligation to provide for the basic needs of all people (Corning, 2015). The principle of need in pension design suggests redistributive income transfers to address financial impoverishment.

The second principle, which they call desert (related to the word deserving) suggests that workers should be rewarded financially in accordance with performance at work. This principle justifies earning differentials, and by extension, unequal transfers from occupational pensions would reflect these. Consequently, some would have larger pension payouts than others. Corning (2011) argues that the equity attribute of the fairness requirement of social contracts justifies financial rewards reflecting individual differences in talent, performance and achievements.

Finally, reciprocity, the third component of the biosocial contract, highlights the importance of mutuality in obligations and benefits for the fair distribution of the enhanced value created through cooperation. Hyde and Shand's characterize this as "citizenship," based on the characteristics that people share and demonstrates the importance of universal rights and obligations. Reciprocity is critical in balancing relationships with each other.

The ILO in a multi country report entitled, ['The political economy of pension reforms in times of global crisis: State unilateralism or social dialogue?'](#) emphasises the importance of negotiating the social contract in pension reform, as in any other policy reform. The report asserts processes have been hasty and proper consultations with the social partners and other stakeholders have been deficient and this raises significant questions as to the sustainability of the reforms.

The Quebec Report entitled, ['Innovating for a Sustainable Retirement System, A Social Contract to Strengthen the Retirement Security of all Quebec Workers'](#), also highlights the importance of social contracts in the pension reform process.

Equality

The central tenet of equality is that basic needs required for the survival and reproduction of human society should be made available to all. “Goods and services must be distributed to each of us according to our basic needs (in this, there must be equality)”. Equality involves a “collective obligation to provide for the common needs of all our people” and “it does not entail a wholesale redistribution of wealth (Corning, 2011, p.11). Corning identifies 14 primary needs: thermo-regulation; waste elimination; nutrition; water; mobility; sleep; respiration; physical safety; physical health; mental health; communications (information); social relationships; reproduction; and nurturance of offspring (Corning, 2011). The basic needs specifications may differ between countries, societies and communities.

EXPLORE

The [Basic Needs Index](#)

An example of the basic needs index supported by the Indiana University that are used in practice by organizations like the [Salvation Army](#). The UN has a [Multidimensional Poverty Index \(MPI\)](#).

We may not agree about the means to deliver these basic needs; nevertheless, the collective survival imperative compels us to have empathy for all members of society. Basic needs do not necessarily have to be met by the state (government), in fact most are met by groups, like family and the private sector. Of course, families are not equally resourced and external support may be required, typically from charity or state funded programs. The key point is that societies must accept the mutual obligation to ensure that basic needs are met. The means for meeting basic needs are informed by many factors including political ideology, cultural values and beliefs.

The first precept, equality as a component of the biosocial contract, is the easiest to operationalize. It refers to “the basic needs” guarantee. An empirical application of the equality component in the social contract is provided by the basic needs index.

Equity

The second component of social contract is equity. The base unit of all societies are individuals who thrive by being connected to others. We need each other to be successful in the collective survival enterprise, however, human skills, talents, intellectual capacity, and other human abilities vary greatly. Cooperation is necessary for the collective survival enterprise, however, competition brings out unique individual skills and abilities that add tremendous value to society. Rewards for human talent incentivize their continued development. The **equity precept** is based on the principle of reward for effort. In general, it implies that the rewards a person receives should be proportionate to effort, investment, or contribution. Equity is based on the deep psychology of fairness, that is our strong desire to be recognized honored and rewarded for our Individual efforts and achievements. The equity component of the biosocial contract is about how to fairly distribute the economic

surpluses of a society—the excess beyond what is required to provide for our basic needs. If merit is deserved, inequality in wealth is accepted as part of the social contract. Perhaps this is because we aspire to be someone who achieves and gets rewarded for genuine effort.

In Canada, for example, there are many different types of pension plans that deliver a wide range of benefits and post-work income. Defined benefit, defined contribution and government-based plans like social security and Canada Pension Plan require both employee and employer to contribute and the retirement benefits are higher than taxpayer funding programs like Old Age Security. The income difference between occupational based and taxpayer supported plans is considered fair since the higher income is based on the merits of many years of contribution by the employee.

Reciprocity

Reciprocity is a corollary of equality and equity. It is considered an entrenched social norm. Colloquially known as “tit for tat,” reciprocity can be either positive or negative. Positive reciprocity occurs when someone does something positive and another reciprocates by doing something positive back. For example, I give you a gift and you give me a gift back. Negative reciprocity involves getting even or getting back at someone; positive reciprocity is like a virtuous circle as opposed to the vicious circle of negative reciprocity. The golden rule of “do unto others as you would want others to do unto you” reflects the importance of reciprocity in supporting the social contract. People consider it unfair when expected reciprocity fails to occur. Without reciprocity, the precepts of equality and equity would be meaningless. Interestingly, reciprocity does not have to be symmetrical, and in fact is mostly asymmetrical, with one party having more power than another. (Rawolle, 2013). Thus, a social contract does not have to entail exchanges of equal value to be perceived as a fair exchange.

An excellent example of negative reciprocity was outlined in an article about pension retrenchment in the Netherlands. It shows a direct relationship between the retrenchment of pension rights in the form of withdrawal of tax benefits on pension contributions to one group of workers, as being perceived as unfair, and resulting in a reduction in job motivation (Montizaan, Cörvers, De Grip, & Dohmen, 2012). In pension design, reciprocity establishes expectations and obligations. Pay in and pay out pension plans are based on a shared contribution of employer and employee. When one of the parties, usually the employer, reneges on contributing their share, loss or reduction of pension payout, it is perceived as unfair and threatens the integrity of the social contract. A recent example of this is the denial or reduction of benefits and pensions to employees as a consequence of the Sears Bankruptcy ([Mason, 2018](#)). Sears employees had asserted that they accepted lower wages or reduced their bargaining expectations because of the anticipated and expected benefits of pension payouts. When the employers reneged on these expectations this had implications for the wider pension system as it weakens the reciprocity component of the social contract and threatens the broader sustainability of the ‘five pillars’ of a national pension system.

The Extent of Prosocial Behavior – Individualism & Collectivism

In the sharing of value social, political, and cultural norms, the society or country's perception of individualism and collectivism will have influence on the determination of the emphasis on equality; equity and reciprocity in pension system design. Individualism and Collectivism will explain the emphasis each country places on the pillars of pensions as identified in the World bank's typology of pensions around the world.

The perennial contradictions between individualism and collectivism shapes political, social and economic politics and policies. Individualism, can be described as a belief system that values the freedoms and rights of individuals above those of the group or society. Collectivism is a belief system that values the collective, group or society over those of the individual. The seeming incompatibility between these two perspectives defines the core political divide between freedom and equality. Those who value individualism support conservative and libertarian political parties and promote individual freedom. The individualists promote private sector solutions and less government involvement.

In contrast, collectivists back socialist and progressive political parties that fight for equality. These communitarians see a greater role of government in providing social goods and services. Therefore, in economic affairs, capitalism is more highly supported in societies and cultures with an individualistic leaning, while socialism is favored by cultures that lean towards collectivism. The main conflict lies in how goods and services are produced (private vs state enterprise), and how the wealth generated is distributed (through wages and investment returns vs. welfare and basic annual income).

Societies appear to have a default position of being either individualistic or collectivist. Individualism or collectivism, is deeply entrenched in the social and political culture, and is a key element of the implicit social contract. The country's constitution, institutions, policies, political parties, ideologies, and political discourse contribute and shape the social and political culture.

Cultures lean towards either individualism or collectivism. The collectivist mindset generates socially constructed values and beliefs that include equity and distributional justice, social solidarity, integration and inclusion. In contrast, individualism values individual responsibility and contractual rights. Both collectivists and individualist see some value in some form of social contract; they disagree on the extend and depth of collective action to solve social and economic challenges. Collectivists tend to see more value in social contracts whereas individualists see social contracts restraining individual freedom. Cultural preference towards either individualism or collectivism influence the interpretation of the equality, equity and reciprocity components of the biosocial contract. For example, the social culture of United States is considered to be individualistic and based on the belief government cannot and should not be active in the lives of their citizens. The health care battle in the United States can be considered a case study of the clash between culture and politics. Within the United States, despite mountains of data showing otherwise, a widespread belief exists that their health care is the best in the world. Even when individuals do recognize the deplorable state of many social health metrics, there persists a stubborn, Lockean refusal to entertain the idea that more government may be the solution" (Meslin, Carroll, Schwartz, & Kennedy, 2014).

In contrast, Canada is considered to have a slightly more collectivist social culture than the United States. While health care in the US is contentious and politically charged, the matter of public funding and universal access to basic health care in Canada has been settled at least for the time being.

The normative principles of equality, Equity & Reciprocity can form the basis of a response to calls for changes in pension systems around the world triggered by the growing challenges of longevity, technology and globalization. All pension systems will have pillars that share these tenets and principles. However, the emphasis on the different pillars in a national pension system on the tenets of equality; equity and reciprocity will depend on social and cultural norms that interpret values and beliefs like individualism and collectivism. The social and cultural norms will be instrumental in determining the emphasis or the relative weight of the three tenets or normative principles of social contract in a national pension system.

Negotiating Pension System Changes

Social contracts implicit in pension systems, can be negotiated at three levels (Rawolle, 2013). The first level, the societal level, is a broad social contract that impacts the relationship between a government and its citizens. This is the level where the fairness precepts apply. From time to time, the commitments and obligations of the social contract are made explicit, usually in momentous policy declarations in times of national crises. For example, both Franklin D. Roosevelt's *New Deal* in the USA and R.B. Bennett's *New Deal* in Canada were both announced in the depths of the Great Depression in the 1930s. US President L.B. Johnson's *War on Poverty* in the 1960s is another example.

There is growing interest in expanding social contracts to include social rights. As noted earlier, the language of national constitutions come close to describing the terms of the social contract. In 1944, Franklin D. Roosevelt challenged the US congress to pass legislation to provide social rights like medical care, a decent home and adequate protection from the economic fears of old age. Grand pronouncements like these build on the original social contract, giving them legitimacy and the support needed to mobilize members of society. These programs focus mainly on economic rights and not on social rights. Classical social contract theories and ideologies that were influenced by them, focused on political, economic, civil and property rights. Social rights, like the right to a minimum income, education, housing and health care, are noticeably absent in these theories and ideologies and are not usually given constitutional protection. Social rights are at the core of social contracts.

At the second level, social contracts focus on social, economic, or political institutions like health, family, retirement, social justice and the like. An example would be the social institution of retirement advocating for a social contract supported by organizations like AARP in the United States or CARP in Canada. Other institutions and non-governmental organizations can also be recruited to help build the social contract.

The third level of the social contract is focused on managing the relationship characterized by

fundamental asymmetries of power and knowledge. An example of this would be the social contract between a teacher and their students. It refers to specific contract-like mechanisms that set expectations and relations between people in regulated service provisions (Rawolle, 2013). In the field of pensions, this would include dyads like financial planners and those seeking advice on their pension planning. This kind of social contact would make explicit the expectations and commitments of both parties.

In summary, negotiating pension system changes at the first level of the social contract, is a very large task and involves many people within society. At the second level, it necessitates a mobilization of allies and partners connected to a social, economic and political institution. This would take time, resources, and commitment by those involved. Third level efforts would be more specific to the kind of asymmetrical relationship requiring a contract-like mechanism to encourage the parties in the contract to apply the fairness precepts. Given the substantial amount of effort involved in creating an explicit social contract, beginning the process by prototyping and testing the contract-like language at the third level to explore asymmetrical relationships would be a good starting point.

The process of negotiating social contracts is not a legal process guided by those in the legal profession. Rather, it is based on contractual or social morality. **Social morality** is defined as “the basic framework for a cooperative and mutually beneficial social life” and “provides rules that we are required to act upon and which provide the basis for authoritative demands of one person addressed to another” (Vallier, 2011). These are the publicly recognized rules of conduct that determine how we should treat others and the conditions under which others can hold us accountable or blame us for violating them. When negotiating a contract-like relationship, the principles of informed consent between/among the parties, points of renegotiation at specific times and reciprocal accountability will guide the negotiation process (Rawolle, 2013).

Exercises

TOPIC REVIEW

1. Social Contracts
2. Canadian values
3. Canadian Charter of Rights & Freedoms
4. The “Selfishness Axiom”
5. Pro-social Behavior
6. Bio Social Contract
7. Fairness Precepts:
 - Equality
 - Equity
 - Reciprocity

Exercises

SAMPLE REVIEW QUESTIONS

1. What are social contracts? Discuss the links between social contracts and ecological rationality.
2. What is a sustainable pension system design? What are the advantages of a sustainable pension system design? Why would a sustainable pension system design be an ongoing process?
3. Discuss pension plan designs like defined contribution; defines benefit; target benefit; defined ambition; public funded; pay as you go. Using the perspective of social contracts discuss how these different pension plans can they be part of a sustainable pension system?
4. discuss the role of individualism and collectivism in shaping the emphases in (bio)social contracts.
5. Explain the three levels at which social contracts can be negotiated. Evaluate, how in your opinion can these negotiations impact the emphasis on the five pillars of a national pension system.

TOPIC 4: THE PENSION DESIGN FRAMEWORK

Rajeeva Sinha

Learning Objectives

After reading this topic, you should be able to answer these questions:

- What is the implication of classical, bounded, and ecological rationality?
- How does ecological rationality explain national pension system design?
- What explains the variations in national pension system design?

What do we Mean by Design?

Kumaragamage (2011) broadly defines design as

“a roadmap or a strategic approach for someone to achieve a unique expectation. It defines the specifications, plans, parameters, costs, activities, processes and how and what to do within legal, political, social, environmental, safety and economic constraints in achieving that objective.” (as cited in [Schwittay, 2014](#))

Pension system vary considerably in their emphasis o the ‘five pillars’ in different countries. Individual countries have pension systems that have design features and emphasis that are specific to them. However, these national pension systems also have design features that are common across countries. How can we explain this common but differentiated framework of national pension systems across countries? This is the focus of the discussion in this topic. The goal is to identify an approach that integrates our understanding of rationality and social contracts developed in the previous topics and explains not only the common attributes but also the relative emphasis on the pillars that constitute the national pension systems.

The identification of a framework of pension design is important, as it helps national pension systems respond to challenges like increases in longevity, changes in the labor market brought about by technology and globalization, in an analytical and consistent manner. Without understanding the common framework underpinning pension design and its different characteristics, expediency and adhocism is characteristic of the policy response to challenges to sustainability of pensions and old age security. An example of expediency and adhocism, often driven by asymmetrical vested interests is the popularisation of the defined contribution plans by the financial services industry and policy makers. The defined contribution plans are set as the default and only alternative to the “failing” defined benefit plans. The evidence from the 401(k) plans in the United States, the only

large-scale implementation of defined contribution pension plan design, show that such plans have been unsuccessful in securing the retirement finance for the majority of workers (EBRI, 2016, 2017). Nonetheless, such defined contribution plans continue to be adopted as the default alternative to the withdrawal of defined benefit plans in occupational pensions.

Perspectives on Rationality & Pension Design

The alternative perspectives of intertemporal choice and decision behavior that emerge from the three different approaches to rationality discussed earlier, have implications for design governance and investment of pensions. Classic or economic rationality leads to the advocacy of a non interventionist policy intervention in pension decisions amongst the working population who have the disposable income to save for their retirement. *Homo economicus*, with its assumption of perfect foresight and capacity to incorporate all available information, can effectively make the intertemporal choices to financially provide for their retirement. Under this assumption of classical rationality, the area of policy focus is on transfers amongst those who cannot save (poor/ low wage earners) or the pay as you go component of the five-pillar framework of pensions because of the lack of disposable income in this population group. Under this framework the asset management and investment responsibility of pension planning can be decentralised with little or no requirements for governance and institutional investments in infrastructure.

The bounded rationality framework accepts the classical rationality assumption of self-interest as the motivation but disagrees with the assumption of optimizing as the objective of the of the decision maker. As discussed in the topic on intertemporal choices, our decisions are guided by self-interest as in classical rationality but given our cognitive limits we are unable to choose the best possible outcome that utilises all available information. Hence we are unable to optimize but do pursue self-interest maximising behaviour. Thus, given the bounded rationality and the pursuit of satisficing behavior, the behavioral view calls for '[nudges](#)' or the creation of an incentives and institutional infrastructure that helps people into a band of behavior that ensures intertemporal decisions promoting pensions and financial security into old age. An example of these nudges or design features in pension and retirement schemes would be commitment devices like automatic enrollment into occupational contributory pension plans which aids in intertemporal choices that promote financial security in retirement.

The bounded rationality framework points to the creation of an incentive and institutional pension infrastructure that promotes intertemporal pension choices. In Canada, an example of such an incentive is the tax break for Registered Retirement Savings Plan (RRSP). Another design feature of the institutional infrastructure is the compulsory enrollment and payroll deduction and contribution by both employers and employees under the Canada Pension Plan. Bounded rationality, while recognizing the limits of individual capability/responsibility, still calls for a decentralized framework of pension design that promotes an individual's satisficing behaviour . The emphasis in bounded rationality is on creating an institutional structure that simplifies the demands on an individual's cognition and decision-making capacity for taking intertemporal decisions.

Ecological rationality also points to a greater role for institutions and social contracts in the design

governance and investments of pensions. Ecological rationality and the social contract that allows for the determination of what is every person's due provides the rationale for the five pillars of the pension system. The emphasis in ecological rationality is on the role of the environment in promoting superior intertemporal choices. Decisions are process driven and not goal driven. Thus, pension policies require an institutional framework that is sensitive to the environment in which it is embedded. The most important component of the environment for an intertemporal pension policy framework is the social contract. The social contract is an environment that will decide the emphasis on the five pillars in the nation's pension plans and the design governance and investment attributes of its national pension system. As discussed in the topic on social contracts, the emphasis on the five pillars in pension design will depend on the country's socio political systems location in the individualism/collectivism spectrum.

The role of different interpretations of rationality in our decision behaviour and in the design of pension systems and the individual pension plans should not be seen as mutually exclusive. Classical and bounded interpretations of rational decision behaviour will have greater relevance in the design of pensions at the plan level while ecological rationality will be relevant in the design of pension systems.

Ecological Rationality Social Contracts and the Pension System Design

The specific design of a country's pension system is the outcome of a process of negotiation between different stakeholders. The negotiation terms are set by the society's emphasis or location on the individualism collectivism scale. The negotiated design must be periodically renewed as necessitated by the changes in longevity and in the labour market.

A nation's choice of pension system will be the outcome of the negotiation by various stakeholders about their society's relative emphasis on the three precepts of the (bio) social contract: equality (E), equity (Q), and reciprocity (R). Every society will decide for itself to what extent it is obligated to support people in retirement based on its history, culture, and level of economic development. Is the right to financial assistance in old age unconditional, or are such entitlements contingent on obligations, including work and savings? What should be the extent of inequality in potential pension benefits in pension design as an acknowledgment of differing human talent and merit?

Variations and choices in pension design in the social contract space may be country specific. However, we can identify some broad classification or typology to explain the emphasis these countries may place on the three tenets of a social contract. At the risk of oversimplifying the underlying complexities of the choices regarding E, Q & R, such a typology, would be beneficial to understanding the variations in pension design across countries and provide us with a comparative framework for analysing the changes in pension design. In the absence of such a framework, proposals for pension design and reform become subject to ad hoc influences of vested interest.

Dixon and Hyde (2003) propose a typology of welfare ideologies to apply to changes in pension design in many countries. This typology or classification can also be used to interpret and understand the location of pension design within the social contract space. The location on the social contract space reflects the society or the country's emphasis on E, Q & R in the design of

its pensions. It also indicates the changes it proposes in response to longevity increases and labor market changes due to technology or globalization.

The four categories expressed in Dixon & Hyde (2003) are displayed in Table 6 below:

Table 6
The Welfare Ideology Spectrum

Anti-Collectivism	Reluctant Collectivism	Reluctant Individualism	Social Reformism
<ul style="list-style-type: none"> • Competitive markets for pension products; • no mandatory pension requirement; • pension financing individual responsibility; • administration and investment fund management by the private sector and market; • no role of public policy beyond the provision of means (personal or family unable to provide) tested survival needs; • selling of pension products only by the financial services industry; • no regulation of providers; fund managers; • existing consumer laws deemed sufficient 	<ul style="list-style-type: none"> • Competitive markets for pension products; • mandatory pension requirement; • role for public policy as a social insurance to maintain social stability and not just survival because of market's inability to ensure full employment always; • role of public policy also in incentivizing financing of pensions through tax breaks; • selling of pension products by the financial services industry; • but role of non-profit sector possible; • industry-specific regulation by state 	<ul style="list-style-type: none"> • Competition between non-profits with freedom for exit and entry; • mandatory pension requirement; • greater role for non-profit collective ownership by beneficiaries in pensions; • public policy role only in promotion of labor force participation; • making pension participation mandatory; 	<ul style="list-style-type: none"> • Regulated pension management to non-profit, industry, employer, unions or community-based partner organizations; • mandatory pension requirement; • individual responsibility for financing with state subsidies for those outside the workforce or those on low wages; • sale of pension products by partner organizations; • extensive state regulation in all areas: selling, service, product provision, investment decisions

Note. Adapted from Dixon & Hyde (2003)

A mapping of the Dixon and Hyde (2003) typology in the E, Q & R social contract space shown in Table 7 below, gives us a common framework to evaluate pension design in different countries.

The common framework is not an idiosyncratic arrangement, but rather contain consistent features with variations that can be explained by the identification of the social contract, on the welfare ideology spectrum which in turn is a function of the societal interpretation of the roles for individualism and collectivism.

Table 7

Mapping E, Q, and R Social Contract Components in the Welfare Ideology Spectrum

Anti-collectivism	Reluctant Collectivism	Reluctant Individualism	Social Reformism
Greatest emphasis on Q ; minimal emphasis on E , and little or no consideration for R	A greater emphasis on Q and a moderate emphasis on R , and then on E in that order	A greater or near equal emphasis on R and Q , and then on E	A greater or near equal emphasis on R and E , and then on Q

There is no evidence that any national pension system belongs to the anti-collectivism category. Despite the popular perception that individual responsibility and market should be the response to rising longevity and labor market changes because of technology and globalization, no country or society chooses to adopt anti-collectivism as their framework for pension design. Defined contribution plans are popularized by the financial services industry, and by policy makers on grounds of expediency, but not as a negotiated outcome of pension design. Neo-classical economics and its emphasis on anti-collectivism has influenced pension redesign, but these values are inconsistent with the social contract. Modern states are committed to the fairness principle and some mix of the E, Q & R components as outlined above in Table 7.

The relative emphasis on E, Q & R lies in the society's interpretation of the social contract. The interpretation will depend on the society's location on the welfare ideology spectrum as outlined by Dixon & Hyde (2003). National consultations can inform a country about its location on the welfare ideology spectrum and its relative emphasis on E, Q & R. In Canada the document that informs us about our location on the Welfare ideology Spectrum and our social contract is the [Canadian Charter of Rights and Freedoms](#). The interpretation and our location on the Welfare Ideology Spectrum is the subject of ongoing consultation and negotiation and informs our society and country of our emphasis on E, Q & R. An example of such ongoing consultation is the [Citizens' Dialogue on Canada's Future: A 21st Century Social Contract](#) (most recent changes by Fletcher, 2017).

Table 8

Mapping Pension Plans in Canada onto the Five Pillars

	CAPITAL FUNDED	PAY AS YOU GO (PAYGO)
PUBLIC	Canada Pension Plan (CPP) – (Pillar 2)	Old Age Security (OAS) – (Pillar 1) Guaranteed Income Supplement (GIS) (Pillar 0) Guaranteed Annual Income System (GAINS) – Specific to Ontarians (Pillar 0)
PRIVATE	Individual (Employee) <ul style="list-style-type: none"> • Registered Retirement Savings Plan (RRSP) – (Pillar 3) • Tax Free Savings Plans (TFSA) – (Pillar 3) Occupational (Employer/Employee) <ul style="list-style-type: none"> • Defined Benefit (DB) – (Pillar 2) • Defined Contribution (DC) – (Pillar 2) • Pooled Registered Pension Plan (PRPP) – (Pillar 2) 	

The second design feature of these programs is that they all have an income threshold, beyond which they are either progressively reduced due to higher income or not available at all. Thus, Old Age Security (OAS) in 2017 begins to be clawed back when pension income exceeds \$74, 788 per year (Yih, 2017). If annual income including OAS is less than \$17, 599.99 per year, the Guaranteed Income Supplement (GIS) is available on a sliding scale. For example, GIS is \$804 dollars for those reporting no pension income from any source and declines with a rising income and is \$0 when annual income reaches \$17, 599.99 (Government of Canada, 2018). Similar considerations apply to the level of allocations for Guaranteed Annual Income System (GAINS) payments for seniors, which is a provincial program available to all Ontarians (Government of Ontario, 2013).

What is the rationale for these design features? Why does the pension design provide for a guaranteed minimum income for all Ontarians 65 years and above? Why is the availability of these benefits related to pension income from other sources available to an Ontarian in retirement? The concept of ecological rationality provides the rationale for these programs. Ecological rationality requires that our decisions promote co-operation between members of the group or society and this has been the basis of our success as a species. The environment in the public policy decision context is the social contracts specific emphasis on E, Q & R as conditioned by the welfare ideology spectrum.

This social contract comes under strain and its continuation becomes unsustainable if what Corning (2005) describes as “equality” (E) is not available to all people in a society. Equality implies a

collective obligation to provide for the common needs of all people, which includes the elderly and retired. In the specific case of pension design, the preservation of the social contract requires that incidence of old age poverty is minimized to the extent possible; depending upon the level of economic development. In the case of a developed country like Canada, this means that we cannot have retirees in poverty without shelter and receiving income that does not ensure that their basic needs such as healthcare, food, and clothing are met. Typically, in most countries, pension programs aimed at financing the equality component of the social contract are not funded, but rather are on a PAYGO basis. Given the expected average longevity, it is considered part of the intergenerational contract that the young would take care of the old. Therefore, these pension programs are funded by the current tax revenue of the government. In effect, the current workers will pay for the equality component of the social contract in this pension design.

All countries with viable PAYGO pension programs seek to minimize the dependence of the population on this form of financing retirement. Failure to do so can lead to unsustainable fiscal deficits, reduced investments in infrastructure, and, a diminished capability to fund the PAYGO systems in the future. National pension systems try to reduce the dependence on PAYGO programs by encouraging current workers to save for their retirement. In the top left quadrant is the publicly funded and governed pension plan. In Canada such a national pension program, is the [Canada Pension Plan](#) (CPP). The CPP is financed by mandatory contributions from employees and employers (including self-employed) who have income above \$3,500 and are of 18 years or older. The province of Quebec has its own variant of the CPP called the Québec Pension Plan (QPP). In the social contract environment, the CPP represents the reciprocity component of the bio social contract. Reciprocity (**R**) requires that each of us contribute proportionately to the viability of the pension design according to our abilities.

In the bottom left quadrant are the merit or equity (**Q**) component of pensions in the social contract space. The [Registered Retirement Savings Plan \(RRSP\)](#) and the [Tax Free Savings Plan \(TFSA\)](#) pension programs are voluntary, and left up to individual choice. Employees may also have access to workplace or occupational pensions. There are different kinds of occupational pension plans. Some of the more popular ones are the [Defined Benefit Plan \(DB\)](#), [Defined Contribution Plan \(DC\)](#), and [Pooled Registered Pension Plan \(PRP\)](#). Some of the newer formulations of the occupational pension plans are the [Target Benefit Plan \(TB\)](#), and the [Defined Ambition Plan \(DA\)](#). The ability to contribute to these programs is a recognition of merit or the superior economic capabilities of the individual in the social contract framework.

The effectiveness of these capital-funded programs to reduce the dependence on PAYGO pension plans has come under growing scrutiny. Capital-funded, public and private pension plans face complex challenges because of rising longevity, healthcare costs, and the changes due to globalization and technology, impacting the labor market.

THE CHANGING SOCIAL CONTRACT ENVIRONMENT

Rick Wartzman, a senior advisor at the Drucker Institute, traces the changes in the social contract between companies and employees in *The End of Loyalty: The Rise and Fall of Good Jobs in America*

Listen to his interview (25:19) on National Public Radio

<http://www.npr.org/books/titles/535626741/the-end-of-loyalty-the-rise-and-fall-of-good-jobs-in-america>

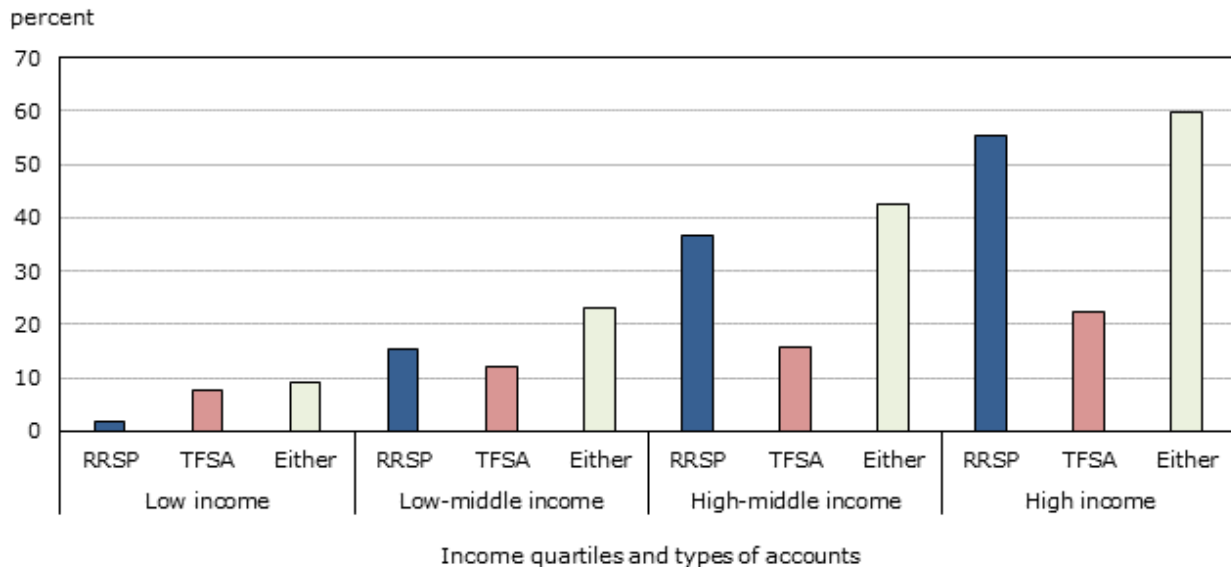
For six out of 10 Canadian pensioners, the amount of pension available in retirement will be a combination of capital funded public pensions, or the CPP that they have contributed to during their working years, and the PAYGO component that is funded by the current tax revenue of the government. The reliance on the privately managed and funded pension plans is on the decline ([Office of Superintendent of Financial Institutions Canada, 2015](#)). Amongst those who have occupational plans, coverage in the private sector has declined. Furthermore, within the private sector, the percentage of employees who have defined benefit plans have gone down from 53% to 28% between 2003 & 2013.

The individual private-funded and managed pension plans like the Registered Retirement Savings Plan (RRSP) and Tax-Free Savings Account (TFSA) are being subscribed to by fewer active workers and by those in higher income groups. A recent Statistics Canada study noted ([Messacar, 2017](#)):

1. The number of contributors into RRSP declined gradually by approximately 16% over this period, from 5 million in 2000 to 4.2 million in 2013.
2. The number of RRSP withdrawers (total withdrawers) increased over the period, from approximately 0.9 million in 2000 to 1.3 million in 2013.
3. Consistent with the downward trend in the frequency of contributing, the total value of RRSP contributions also declined steadily over the period among 25- to 54-year-olds, from approximately \$30.6 billion to \$22.5 billion between 2003 & 2013

What about the tax-free savings account (TFSA)? The same study also shows that a slight decline in RRSP use over the last few years coincided with an increase in the number of individuals aged 25 to 54 who contributed to a TFSA, from 2.0 million in 2009 to 3.0 million in 2013. However, while the number of TFSA contributors has risen, so has the number of withdrawers. In 2013, there were approximately 1.6 million TFSA withdrawers, slightly more than one-half the number of contributors in that year. However, the value of TFSA withdrawals also increased, from \$1.3 billion in 2009 to \$7.4 billion in 2013. Both the frequency and magnitude of TFSA withdrawals are significantly larger than for RRSPs. Figure 3 provides further insights into the profile of the RRSP and TFSA subscribers.

Chart 4
Incidence of contributing to an RRSP or TFSA (or either) across
income groups for 25- to 54-year-olds, 2009 to 2013



Notes: Income groups are based on total income quartiles. The data on registered retirement savings plan (RRSP) and tax-free savings account (TFSA) use are restricted to the years 2009 to 2013, since TFSAs were not established before this time. For both types of accounts, an individual is deemed to be a "contributor" if positive net contributions were made in the reference year. In other words, individuals who may have contributed but also withdrew a larger amount are not counted. The RRSP withdrawals include the defaults on Home Buyers' Plan repayments.

Source: Statistics Canada, Longitudinal Administrative Databank.

Figure 3. Chart 4: Incidence of contributing to an RRSP or TFSA (or either) across income groups for 25- to 54-year-olds, 2009 to 2013.

Note. Reproduced and distributed on an "as is" basis with the permission (Statistics Canada, February 13, 2017).

With rising longevity, the challenge for most national pension systems across the world is the sustainability of the PAYGO quadrant that ensures the continuation of the social contract. The data on occupational pension plans and individual savings plans like the RRSP and TFSA cited above shows that the bottom left quadrant comprised of privately funded and privately managed quadrant of pension design is failing in its overall objective of minimizing the dependence on PAYGO pension plans. Defined benefit plans are available to only a very small percentage of Canadians outside the government or publicly funded organizations. Only high-income households partake in sustained individual savings through RRSP and TFSA. This is a source of considerable concern in public policy on pensions and in proposed changes in pension design. Identifying and understanding these challenges is the prerequisite for an intelligent and informed discussion about changes in pension design.

Exercises

TOPICS FOR REVIEW

1. The Welfare Ideology Spectrum
2. Anti Collectivism
3. Reluctant Collectivism
4. Reluctant Individualism
5. Social Reformism

Exercises

REVIEW QUESTIONS

1. What are the implications for pension system design under different interpretations of rationality?
2. Describe the characteristics of national pension systems in the different categories of the Welfare Ideology Spectrum.
3. Discuss the emphasis of the national pension in the Welfare Ideology Spectrum on the different components of the Bio social contract.
4. Map the Canadian Pension system into the four pillars using the two by two matrix based on management and funding and discuss the individual pension plans in each pillar.

Exercises

APPLICATION EXERCISE

Research the national pension system design of one other country than Canada. Map the country's pension plan design using the World five pillars as shown in Table 8.

Using the criteria of the bio social contract and Dixon and Hyde's (2003) Welfare Ideology Spectrum (as shown in Tables 6, 7), evaluate the country's location of their national pension system in the social contract space.

You can use the following table template to identify the country's national pension system's location in the Welfare Ideology Spectrum.

Template to identify a national pension system in the Welfare Ideology Spectrum (Dixon and Hyde, 2003)

	Country	[Name of Country]
Complementary Pensions	Program	[Reluctant Collectivism , or Social Reformism]
	Statutory earnings related to pension plans	
a. Collectivist orientation	Labor engagement	
	Monopoly supervision	
	State subsidies	
	Specified benefit entitlements	
	Universal employment coverage	

b. Market orientation	Employer contributions	
	Commercial provision	
	Individual only contributions	
	Unspecified benefit entitlements	

TOPIC 5: THE CONSTRAINTS ON THE PENSION SYSTEM

Rajeeva Sinha

Learning Objectives

After reading this topic, you should be able to answer these questions:

- What are the constraints to implementing a pension plan in a pension system?
- What is financial capability?
- How can financial advisers support long-term financial goals like pensions?
- How do labor market challenges affect pension systems?

From the discussion on pension design in this module we conclude the following. First, a national pension system will incorporate a number of pension plans. This will be a reflection of the multiple but not mutually exclusive interpretations of rationality in our decision behaviour. Second, these individual pension plans will be variations of the individual ‘five pillars’ typology of global pension systems identified by the World Bank. Third, a country’s emphasis on the different pension plans or pillars will be a reflection of the country’s location on the individualist versus collectivist spectrum and its interpretation of the three tenets of (bio)social contract – survival; equity; and reciprocity. This interpretation of the social contract is not static but dynamic and will be continuously evolving in response to changes or constraints in our environment that will challenge existing scope and coverage of national pension systems. This dynamic attribute of national pension systems is consistent with ecological rationality. There is no optimal national pension system design. A pension system design has to continuously evolve in response to its environmental attributes or constraints.

In this topic we will discuss three constraints that apply to the implementation of a pension system.

1. Financial Capability;
2. Financial Advice; and
3. Labour Market.

Constraint 1: Financial Capability

What do we mean by **financial capability**? Financial capability is the combined outcome of the ability to and the opportunity to take financial decisions. At this point it will be useful to clarify the distinction between financial capability and other terminologies that have been used to

indicate capacity to plan for financing old age or pensions. We often tend to use interchangeably terminologies like financial knowledge; financial literacy; financial inclusion and financial capability. Financial capability is distinct from financial knowledge; financial literacy; or financial inclusion. Financial capability as defined above is the outcome of the interaction between both the ability and the opportunity to take financial decisions. The terminologies of financial literacy; financial knowledge or financial inclusion are focused on either the ability or opportunity attribute of financial capability and ignore the significance of the process of interaction between ability and opportunity.

Our understanding of financial has evolved over the years and we can identify three distinct phases. We will discuss each of these phases to understand how financial capability can impact retirement outcomes in any pension system design. The discussion of the three phases of evolution of financial capability also clarifies the confusion between terminologies like financial knowledge; financial literacy and financial inclusion and their roles in financial capability and pension outcome in any national pension system.

Phase 1

In phase 1, financial knowledge and literacy was considered analogous to financial capability. The primary responsibility of old age financial security was on the individual. Programs to educate and deepen/widen financial awareness are expected to help in the attainment of financial capability and contribute positively to old age financial security.

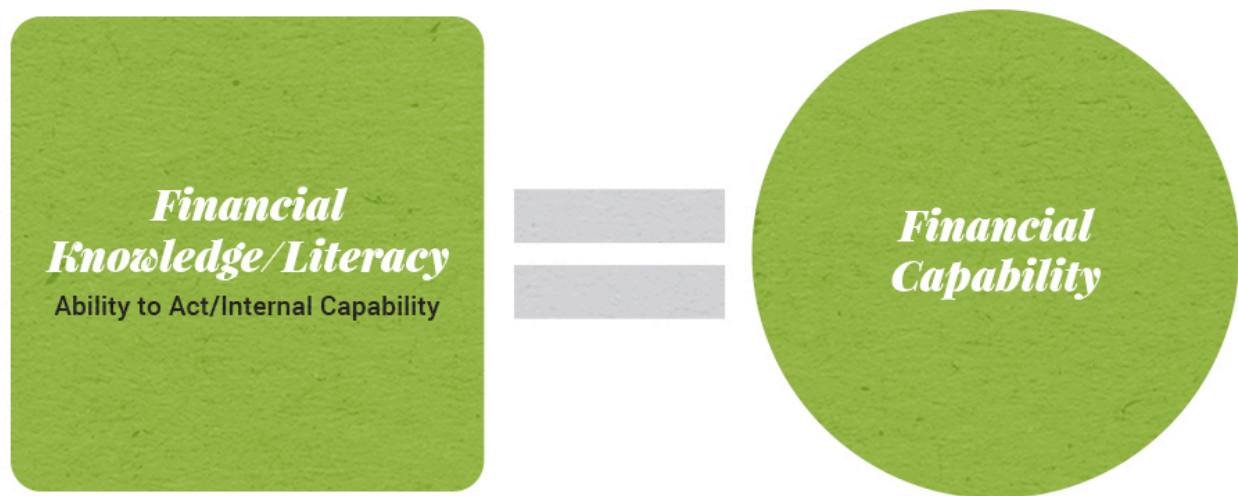


Figure 3. Phase 1 financial capability framework

Phase 2

In phase 2, financial capability was considered to be the outcome of the interaction between financial knowledge/literacy and **financial inclusion**. As in the case of the first framework, the emphasis is on the policy framework that promotes and facilitates individual action on acquiring old age financial security. Financial education and awareness needs to be promoted and the government needs to incentivize the financial services industry to create the opportunity to acquire financial capability by promoting a supply and accessibility of financial products and services.

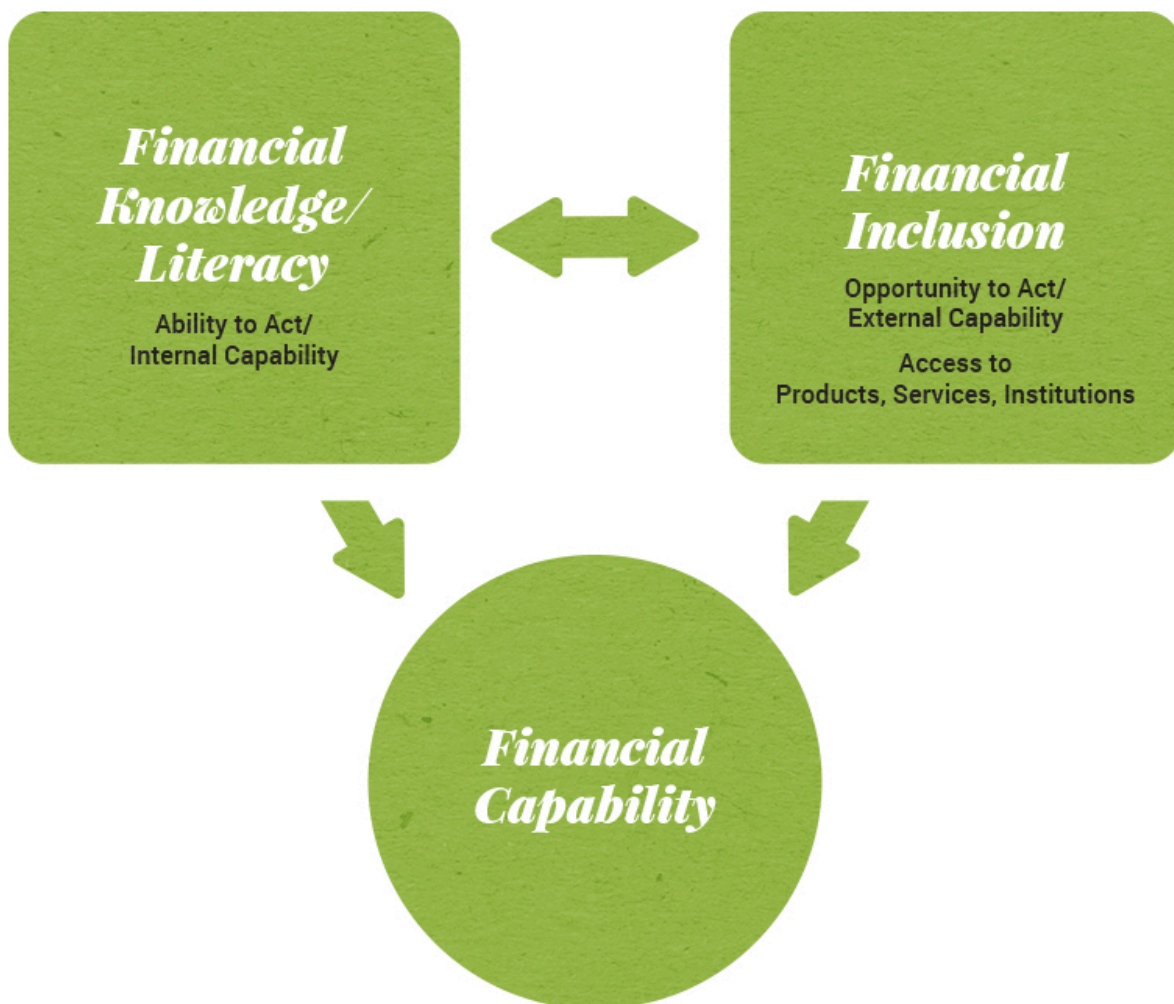


Figure 4. Phase 2 financial capability framework

Phase 3

This is the most recent and current understanding of an individual's ability to acquire financial capability and be able to finance their short, and more importantly, long term goals, like pensions. According to this latest thinking, financial capability as the joint outcome of three groups of influences. By far this is the most sophisticated understanding of how financial capability can help support pensions or retirement financing.

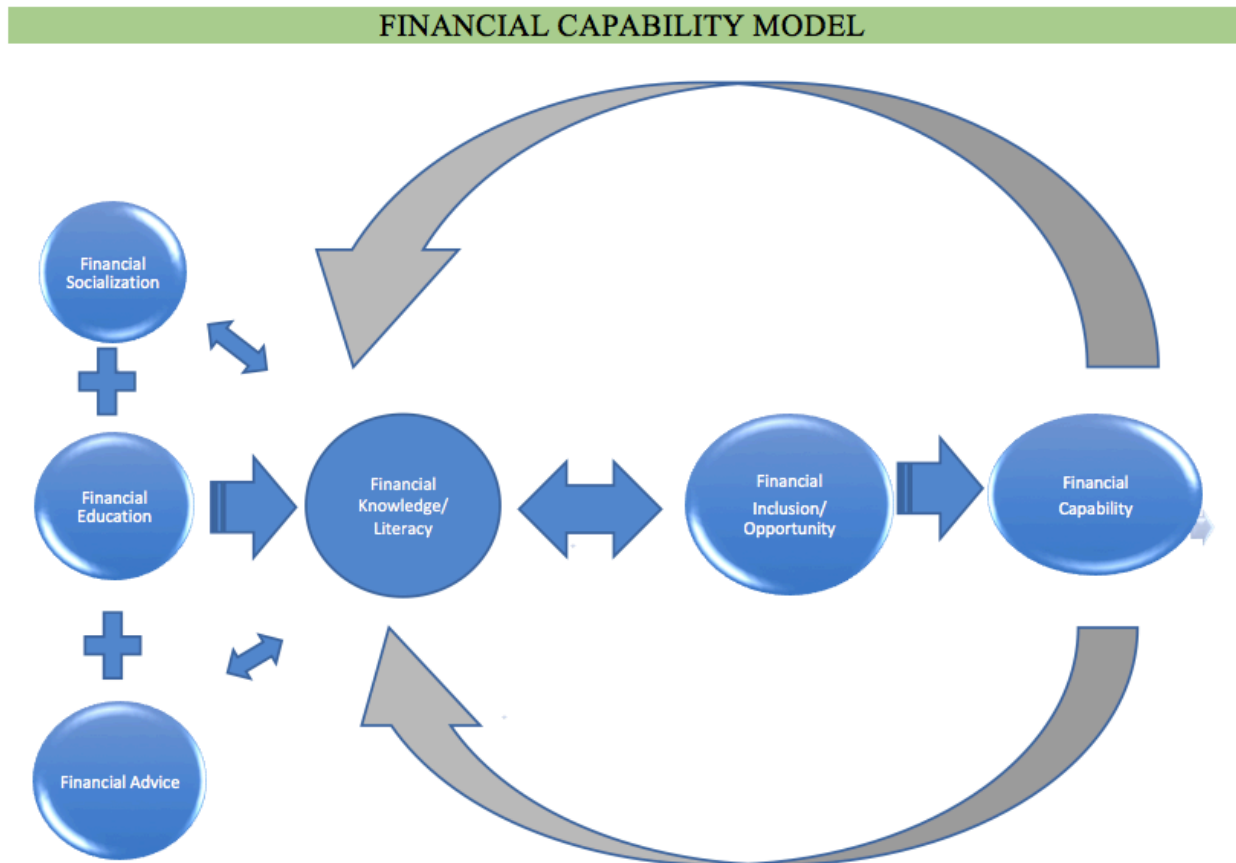


Figure 5. Phase 3 financial capability model

The phase 3 financial capability model is an interdependent system and a joint outcome of a number of influences (Sherraden, 2013). Figure 5 above, outlines the complex inter-relationships that are embedded in any individual's effort to acquire financial capability and be able to save for retirement. In the phase 3 of the financial capability the combined interaction between financial knowledge and skills with financial inclusion will lead to financial capability.

From a pension design perspective, the emphasis on the individual is not likely to contribute to reduced dependence on the PAYGO quadrant of pension plans. The meta-analysis of nearly 188 studies shows that that financial literacy and capability interventions can have a positive impact in

some areas (increasing savings and promoting financial skills such as record keeping) but not in others (credit default) ([Miller, Reichelstein, Salas, & Zia, 2014](#)).

This also explains the rather poor performance of programs seeking to promote individual savings such as RRSP and TFSA in Canada. Efforts to encourage individuals to save for their retirement have to navigate the complex interdependencies outlined in Figure 4. This underlines the complexity of promoting individual efforts in pension design to further promote the sustainability of the PAYGO pension plans.

Constraint 2: Financial Advice

Financial advising can have a significant role in individual and occupational pension designs. Financial advice can come in the form of the provision of technical expertise helping the consumer navigate through the technical characteristics of a product, or as a transactional agent intermediating in the buying and selling of financial products. Financial advisors can also be counsellors or coaches helping the savers through their cognitive and computational constraints as outlined in the topic on intertemporal choice and the discussion on bounded rationality. Does financial advice add value? Are individual investors and defined contribution plan members in the occupational pension plans supported and enabled by the financial advisors in their efforts to save for retirement?

A major concern about financial advice has been its underlying motivation. Given the involvement of the financial advisors or the firms and companies they belong to in both the buy and sell side of the business, it is unclear in whose financial interest the industry works. This confusion of the financial advisor's allegiance is further exacerbated by the opposition of the industry to be recognized as fiduciaries in their role as advisors. A **fiduciary** is a professional standard of practice and care that assures the client that the professional, or the financial advisor in our case, is working in their best interest. The alternative standard of care to the fiduciary standard is the **suitability standard**, which does not require the financial adviser to work solely in the best interest of their client. The suitability standard of care criteria is satisfied if the advisor recommended products and services that are consistent with their client's goals and objectives. Thus, if the risk tolerance of a person saving for retirement is moderate, and requires a balanced growth fund comprised of a fair mix of value stocks and bonds, then the balanced growth fund can be from a product of the financial advisor's investment side of the business and not necessarily the best balanced growth fund in the financial services industry ([Punko, 2015](#)). We will explore the implications of the resistance to fiduciary standards in greater detail in the Module on governance.

Even if we were to assume that the advice given is in the best interest of the person saving for their pension, there is concern based on empirical evidence regarding who seeks or has access to the advice. As you will recall from Figure 3 in Topic 4, a major policy objective of having a multi-pillar pension system is to ensure the sustainability of the PAYGO pension plans by lowering the level and number of claimants on this quadrant of pension design. The privately funded and managed pension plans are either individually or occupationally managed and encouraged through tax and other incentives to minimise the potential burden on plans under the PAYGO quadrant. However, as described in the Topic 4 of this module, the beneficiaries of the tax incentivised individual plans

are largely high net worth households. Similar trends are observed in the uptake of financial advice. There appears to be a self-selection bias in the use of financial advice and financial advisors. The evidence shows that wealth followed by high income, a college degree, and self-employment as the strongest predictor of the use of financial advice (Finke, Huston, & Winchester, 2011). However, evidence also points to clients who used advisors who had much greater financial experience, and often sought to use their services ‘like babysitters’ allowing them to use (financial advisor’s) time that had a lower opportunity cost than their own.

What kind of financial advice is needed that could make the PAYGO component more sustainable? The evidence shows that there is a lack of trust in financial advice and the benefits of financial advice are largely skewed towards high net worth households. First, the financial adviser accept their role as fiduciary and move away from their insistence of suitable standard of care for their clients. Second, a more nuanced understanding of financial advice emerges if one were to make a distinction between four different types of financial advisors or advice. In his review of financial advice models and financial advice, Collins (2010) distinguishes between four types of financial advisors:

1. Financial advisors who work as technical experts for a fee;
2. Financial advisors who work as transactional agents who are not paid directly but indirectly through the purchase or sale of financial products;
3. Financial Advisors who work as counsellors with clients on specific financial needs; and
4. Financial Advisors who work as coaches, offering services designed to help clients reach their financial goals.

Much of the focus in the literature on financial advice is on the role of financial advisors as technical experts and as transactional agents. There is some evidence on the impact of financial advice in the form of counselling and as coaching on long term goals, but most of the evidence is not definitive as it does not either have a control group or normalize for other factors. Studies have also found that those who had the services of financial advisors were more likely to display reduced proclivity for behavioural biases (Shapira & Venza, 2001). However, Hung and Yoong (2010) use a combination of observed data and experimental data to identify causality and find that unsolicited financial advice does not add value. When advice is optional, individuals with low levels of financial literacy are likely to seek out and benefit from financial advice.

Consistent with ecological rationality and the primary goal of pension design being the minimisation of the size and dependence on PAYGO, there is a need to understand the roles of coaches and counsellors in supporting long term financial goals like pensions. Coaches and Counsellors typically work with low income and middle-income households. A better understanding of their impact will provide a superior framework for incentivising tax breaks (as in RRSP and TFSA) to promote the privately managed and funded quadrant of pension plans amongst low- and middle-income households and a more sustainable PAYGO quadrant.

Constraint 3: The Labour Market

Developments in the labour market have important implications for funded pension plans’

outcomes and the prospects for sustainability of the PAYGO quadrant (See Table 8). Mitchell and Turner (2010) are of the view, that the labour market may pose risks greater than or at par with financial market risks in the outcome of funded pension plans.

What are these labour market risks? The paragraphs that follow will explore some of the labour market risks in some detail.

First, the assumption made about the labour market when estimating the outcomes of funded pension plans will be outlined. The prevailing belief in the design of funded pension plans is best represented by the Life Cycle Income Hypothesis. This is the assumptions made about the life time flow of income for a working individual over their life time. Figure 6 below is a representation of the Life Cycle Income Hypothesis.

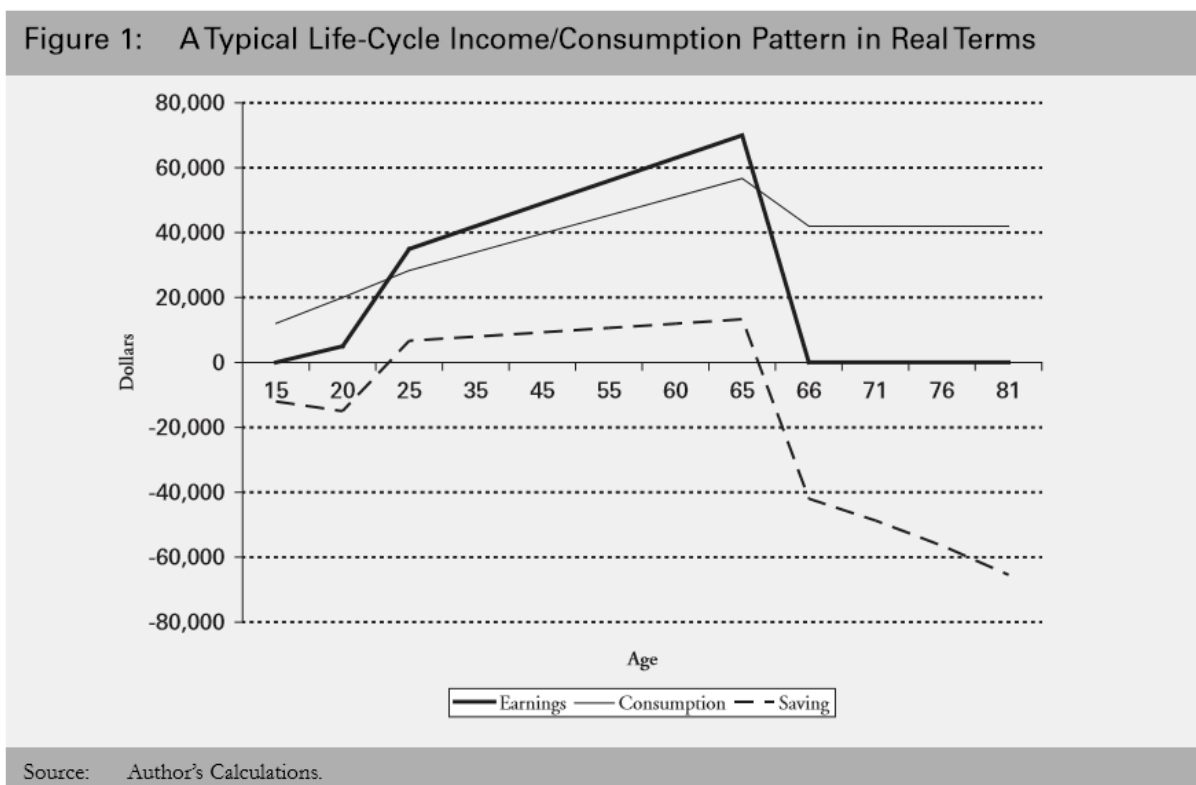


Figure 6. Life Cycle Income Hypothesis. Adapted from “A Typical Life-Cycle Income/Consumption Pattern in Real Terms,” by K. P. Ambachtsheer(2016).

Most pension plan models are based on this assumption of a bell-shape earnings. As shown in Figure 6, The income of wage earners shows a gradual but continuous progression over the years till it drops off to zero with retirement. However, evidence suggest that this is true for fewer than 14% of workers in the US and differs considerably by gender and income levels. As shown in figures below, variances in income also differs by income level and demographic social group. These real-world income patterns have implications for pension design. Pension designs that are based on a smooth

bell-shaped income profile over a lifetime of continuous income increase are inaccurate for most employees.

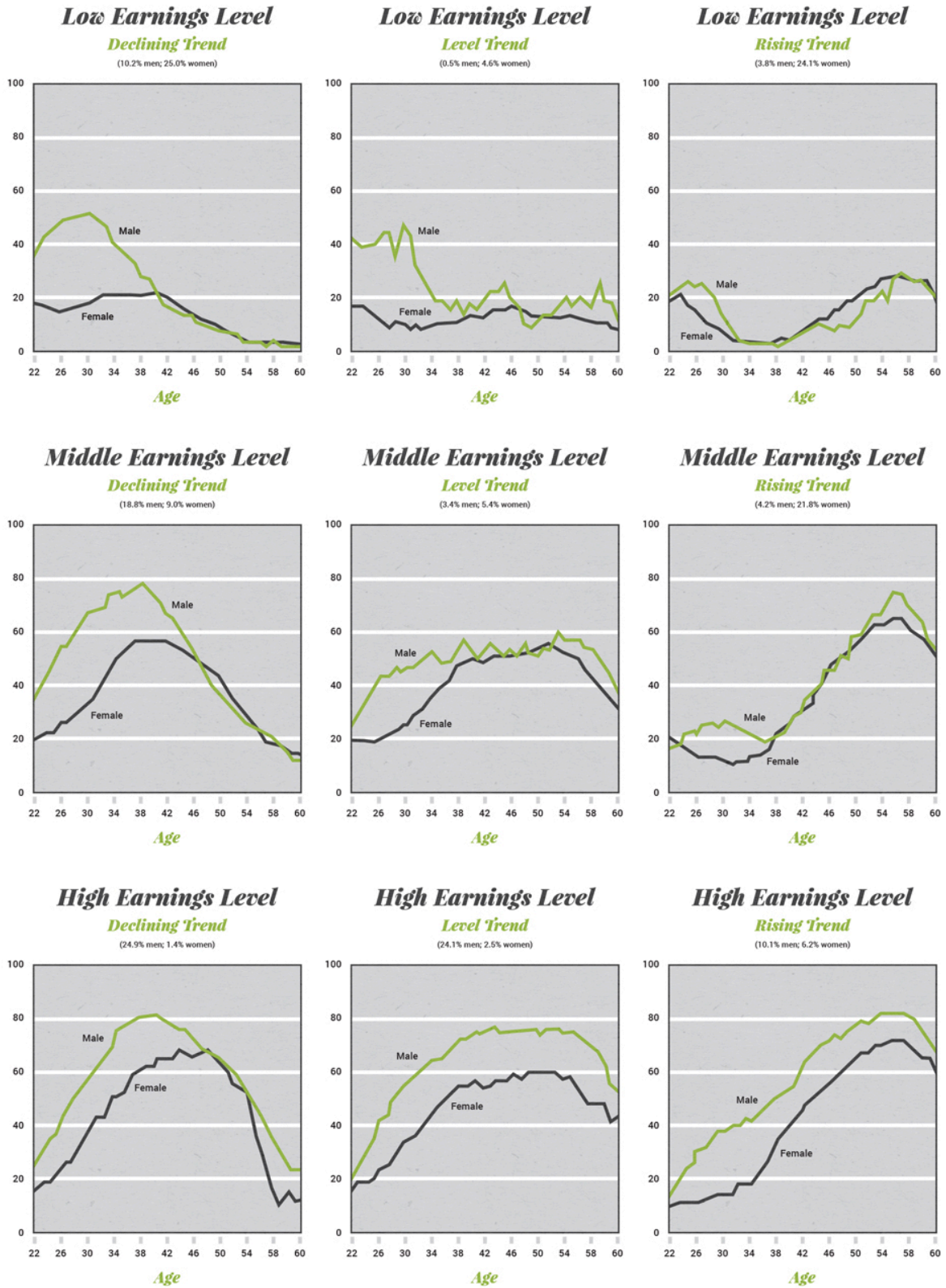


Figure 7. Basic earnings patterns of nine groups of workers in the 1931-1940 cohort (in percent).
Note. Adapted from Bosworth, Burtless, & Steurele (2000).

The labour market attributes: volatility in earnings, uncertainty of hours of work, uncertainty of working lives, and longevity ([Statistics Canada, 2017](#)) will have implications for national pension system design. Table 9 below provides a summary of labour market risks for pension outcomes. Thus, defined contribution plans will have the potential for a superior pension outcome than defined benefit plans for high income earners whose income peaks early in their careers. Defined benefit plans, by contrast, favour those whose income peaks later in their careers. Pension systems will also differ in terms of how pension designs handle job market changes and interruptions in employment. For example, in Canada, if a worker changes jobs and has a defined benefit plan, the accrued pension in the previous job is fixed in nominal terms and falls in value because of inflation.

Table 9

How Human Capital Risks Translate into Pension Outcomes: A Framework

Risk	Pension Plan Type		
	Defined Benefit (DB)	Collective Defined Contribution (CDC)	Defined Contribution (DC)
• Employee-side labor income shock			
Skill obsolescence			
Health shock	Partly smoothed (depends on benefit formula)	Like DB	Contributions directly affected
Disability shock			
Labour force exit	Benefit not bequeathed; survivor benefit possible		Accumulation may be bequeathed
Death			
• Employer-side employment shock			
Hours reduction			
Layoff/firing	Accrual halted; nonvested benefit lost and final benefit may be very low	Like DB	Accrual protected; assets keep earning investment returns
Retirement			

Note. Adapted from Mitchell & Turner (2010).

These labour market attributes have to be incorporated into pension design. A literal application of the life cycle income hypothesis will have implications for the sustainability of national pension systems. Consistent with ecological rationality, the aim of any national pension system is to minimize the dependence on the PAYGO pension plans. However, the labour market constraints outlined above in combination with bounded rationality points to limited financial capability of individuals to save towards a pension. The data from Statistics Canada (2017) discussed above shows the cumulative impact of financial capability, advice, and the labour market indicates that tax incentivized individual savings plans or occupational pension plans, like the defined contribution plans, are failing in scope, or in the number of people who can build their pensions using these plans. This increases the prospect of a greater dependence of an increasing share of the current workers becoming dependent on the PAYGO pension plans such as Old Age Security (OAS), Guaranteed Income Supplement (GIS), and Guaranteed Annual Income Supplement (for Ontarians).

Reducing this increasing dependence on the PAYGO quadrant due to labour market changes, requires a greater emphasis and increased effectiveness of the publicly managed and privately funded quadrant of the pension system. An effective pension design in this quadrant will be consistent with ecological rationality as it reduces the potential for dependence on the PAYGO systems for many reasons. First, it can be the only response to the labour market changes outlined above. Second, greater emphasis on private funded publicly managed pension designs sidesteps the need to focus on the largely ineffective interventions on financial literacy. Finally, such a shift in pension design also reduces the scope of fiduciary risks from agency issues surrounding financial advice.

The publicly managed privately funded quadrant

As a response to the challenges faced by privately managed and funded occupational and individual pension plans outlined above, a trend can be noted globally among countries making efforts to expand existing pension plans or to launch new publicly managed and privately funded pension plans ([Mayers, 2014](#)). In Canada, gradual enhancements to the Canada Pension Plan have been introduced that means workers will receive higher benefits in exchange for making higher contributions ([Government of Canada, 2017](#)). Thus, from 2019, the changes in the CPP will increase the percentage of an average workers earnings from 25% to 33%. The contribution rates have also been changed. Currently, employees contribute 4.95% on these earnings to the CPP and employers make an equal contribution. If you are self-employed, you contribute both the employee and employer portions, which is equal to 9.9%. From 2019 to 2023, the contribution rate for employees will gradually increase by one percentage point (from 4.95% to 5.95%) on earnings between \$3,500 and the original earnings limit. In 2024, employees will begin contributing 4% on an additional range of earnings. This range will start at the **original earnings limit** (estimated to be \$69,700 in 2025) and go to the **additional earnings limit**, which will be 14% higher by 2025 (estimated to be \$79,400).

Similar changes have already been introduced in the UK, Australia and Holland, and are being proposed in the USA. For example, in the United Kingdom, in 2008 the [National Employment Savings Trust](#) or NEST was launched ([Sandbrook, & Gosling, 2014](#)). It is evident from the welcome

page of the website for NEST that a primary motivator for the launch of NEST was the sustainability of the PAYGO pension provisions. In the USA a similar proposal was made but has not yet been implemented ([Sandbrook, & Gosling, 2014](#)).

Are there design considerations that should guide the expansion of these national superfunds? The primary concern that pension subscribers have with such mega funds is governance. The track record of entrusting retirement with public entities or, for that matter, large corporations has not been very good. Pension funds of large corporations are underfunded as their liabilities or benefits accrued to pension plan members is in excess of the funds available to meet these obligations. In addition, current employees as plan members of these corporations are unsure if the organizations they hope to retire from after years of contributing to the pension funds will be around when their work life concludes. The experience with pension funds of public employees is also not reassuring. Funds like the ones for Illinois and Detroit have been severely underfunded and employees have been forced to take cuts in their accrued pension benefits because of budgetary malfeasance and under funding (Blinch, 2018). There are no easy fixes to the problem of underfunded pensions.

The guiding principle for avoiding these dismal long term prospects is intergenerational fairness or equity and complete contracts (Ambachtsheer, 2016). Intergenerational fairness arises when benefits are promised but not financed out of current earnings, leaving the responsibility of paying for the benefits to the next generation. A major reason for this is the absence of the future generation in the negotiation when these benefits are being allocated. An example of this intergenerational fairness asymmetry is shown in figure 8 below. When plans have a funding surplus, that is the funds are in excess of the cost of accrued benefits, it is not uncommon for current employees or their employers to take contribution reductions, holidays or boost their accrued benefits.

Example: Ontario Teachers' Pension Plan

The buoyant market has led to a pension surplus in the The Ontario Teachers' Pension Plan (OTTP). This is how their website explains how the surplus will be used. The OTTP reported a preliminary \$11.5 billion surplus, as of January 1, 2017, on March 29, 2017. The Ontario Teachers' Federation (OTF) and the Ontario government, which jointly sponsor the pension plan, will use surplus funds to restore full inflation protection for post-2009 pension credit and decrease contribution rates by 1.1%. Both changes are effective January 1, 2018.

For more details on the surplus utilization visit the [Ontario Teacher's Pension Plan](#) website.

How quickly the funding status of a pension fund can change is best illustrated by Figure 8 below. As the bar charts show, much of the 1990s, with the tech stocks boom, saw pension plans reporting funding surpluses. Following the 2008 financial crisis, the funding surplus evaporated, and pension funds were reporting a deficit vis-à-vis accrued liabilities. Based on the current stock market performance, it is likely that the pension funding status of the funds included in this diagram have reverted back to a surplus for now.

Intergenerational Risk Asymmetry in Action:

Typical U.S. Public Sector DB Plan Funded Status

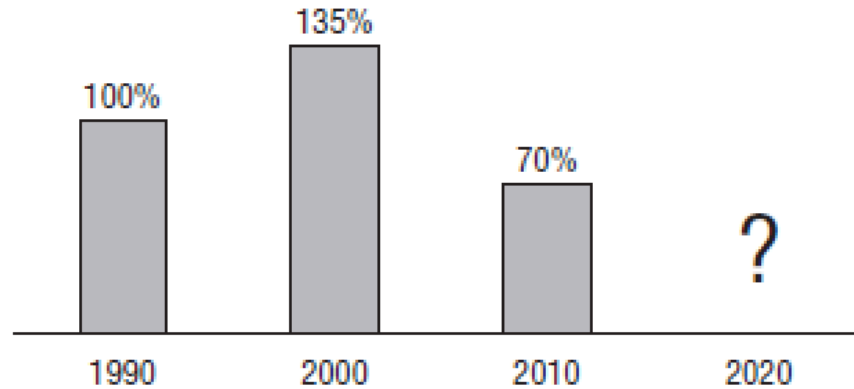


FIGURE 5.2 The Intergenerational Fairness Problem

Source: KPA Advisory Services.

Figure 8. The Intergenerational Fairness Problems

Note. Adapted from [KPA Advisory Services](#)

Explore

For a discussion of pensions from an accounting perspective and issues in the treatment of surpluses, explore the Accounting Treatment of Pension Funds (Office of the Auditor General of Ontario, 2016):

http://www.auditor.on.ca/en/content/annualreports/arreports/en16/v1_401en16.pdf

Clearly, these changes from a funded surplus to a deficit status requires smoothing to ensure intergenerational fairness. However, pension plans and regulatory regimes, instead of building a surplus to provide a buffer against a downturn in asset prices, respond to these windfalls as a permanent gain. Pension plan sponsors move with a short-term horizon to either appropriate these surpluses or redistribute it to plan subscribers to comply with regulatory provisions.

End the Defined Benefit and Defined Contribution Dichotomy

A response at the design level to the multiple challenges faced by privately managed and funded pension plans in the lower left quadrant of Table 8 is to propose design changes in the Defined Benefit (DC) and Defined Contribution (DB) plans. Hybrid plans called **Target Benefit** or **Defined Ambition** Plans have been proposed that seek to reduce the uncertainty of pension outcomes

associated with defined contribution plans for plan subscribers, as well the risk of unfunded outcomes for plan sponsors. So how is this middle-of-the-road solution of choosing between DC and DB plans devised?

The defined ambition and target benefit plans travel the middle road between DB and DC by taking the following steps. A good example of this is the [QSuper Fund](#) in Australia (Ambachtsheer, 2016):

1. Recognition of a fiduciary responsibility towards pension plan subscribers;
2. Move away from a one-size-fits-all approach to the architecture of benefits and expectations by engaging in constant and open communication with plan subscribers and offering them tools and advice. This allows for a reset and recalibration of expectations responses to changes in the financial, economic, healthcare and longevity market;
3. Opening channels of involvement of the pension sponsor in the pension plan members deaccumulation decisions by designing products such as longevity protection purchase options; and
4. Long horizon, wealth creation coupled with dynamic resetting of the asset management in response to changes in the financial market.

The discussion of the operational aspects of pension design leads to two specific conclusions:

1. There is a need for greater emphasis on the pension design quadrant that is made up of plans that are publicly managed but privately funded.
2. Typical plans in this quadrant have been of the defined benefit variety promising a guaranteed benefit to individual plan members. Given the challenges faced by privately managed and privately funded individual and occupational pension accounts, there is a need to expand the role of super funds like the CPP in Canada. However, the expansion of their role in pensions does not have to be a continuation of defined benefit plans or an adoption of defined contribution plans by default. Design hybrids like the target benefit and the defined ambition are viable alternatives and reflect the growing possibility of big data and disintermediation made possible by the new information age. Individual members do not have to be passive subscribers of one size fits all plans with set expectations. As the QSuper story demonstrates, the organization can be open, interactive and reflective of individual plan members' requirements in both the accumulation and deaccumulation phase.

The promise of these possibilities, however, can only be realised by a radical reconsideration of governance and investment frameworks of these super funds. We will discuss this in the next two modules.

Exercises

Topics to Explore

1. Interdependent Capability
2. Financial Advice

3. Labour Market and the Risks to Pensions
4. Life Cycle Income Hypothesis
5. Human Capital Risks
6. Target Benefit or Defined Ambition Plans
7. Fiduciary Standard
8. Suitability Standard

Exercises

Sample Review Questions

1. Discuss the constraints on sustainable pension design imposed by:
 - Interdependence between design; governance & investment decisions
 - Financial Capability
 - Labor Market Changes
2. The target for income is called the income replacement rate (IRR). What should be the IRR? Is it a policy question or an individual choice?
3. What is the design; governance; and investment principles. How are they interdependent?
4. Discuss the phases of evolution in financial capability using the financial capability model.
5. How do labor market changes impact pension risks?

MODULE 2 GOVERNANCE

TOPIC 1: GOVERNANCE OF PENSION PLANS

Rajeeva Sinha

Learning Objectives

At the end of this topic, you should be able to answer these questions:

- What is governance?
- Why is governance required?
- What are the differences between Corporate Governance and Pension Governance

What is the Governance?

Governance is a term that is widely used in a variety of contexts to describe the process of accountability between two parties where one is obligated, through formal or informal contract, to implement tasks and responsibilities on behalf of the other. For businesses or firms, Shleifer and Vishny (1997) define corporate governance as “...the ways in which suppliers of finance assure themselves of getting a return on their investment.” For pensions, the suppliers of finance, or principals, are the pension plan subscribers. Their agents, the other party in the contracting relationship are the various service providers tasked with different responsibilities in the pension management process. The governance framework is not only to ensure accountability and compliance but also to create a decision-making context that leads to superior outcomes or returns on investments.

There are four topics in the governance module. In this topic we discuss a standard view of the structure of pension management and governance. In the following topic we learn that the requirement of pension governance arises because of ‘broken agency’ and strongly non-contractible incomplete contacts. The analysis shows that effective pension governance requires the reduction of opportunism as a behavior. This sets up the discussion in the third topic, for an examination of the role of learning mechanisms and the specific form of learning that will reduce the scope and scale of opportunistic behavior between principals (pension subscribers) and their agents (financial service providers). In the fourth and final topic we discuss some mechanisms that will facilitate the effective working of the learning mode that reduces opportunism in pension governance.

Figure 10 provides a standardized overview of various players and relations in the management of asset based pensions, that are prefunded by accumulating financial assets or savings during the working life of the pension subscribers. Such prefunded pension plans can be of two types. They can be either individually subscribed and managed or they can be managed at an organizational level. The organizational level pension plans can be part of the workplace benefits, or they can be the outcome of public policy. The public policy plans are also called compulsory payroll deductions and are mandated by law with a defined benefit component, which can be means tested. Typically, most organizational pension plans do not have an opt out feature and are mandatory for all members of the organization or the society that sponsors such a pension policy. In Canada, the Canada Pension Plan is an example of such a plan.

If the plan is individually owned, the pension subscriber interacts with the advisor. The other relations depicted in Figure 10 are part of the back-office function of the pension management process. The standard framework of the pension management structure as in Figure 10, identifies the different intermediaries and their interactions. These intermediaries can be other individuals, or they can be organizations that specialize in the provision of specific services required in the management of pensions. Thus, the pension management process involves multiple layers of agents. Governance of pensions is the framework that facilitates the process of accountability, identifies tasks and responsibilities and provides the context for superior decisions amongst these multiple layers of intermediaries and the principal(s).

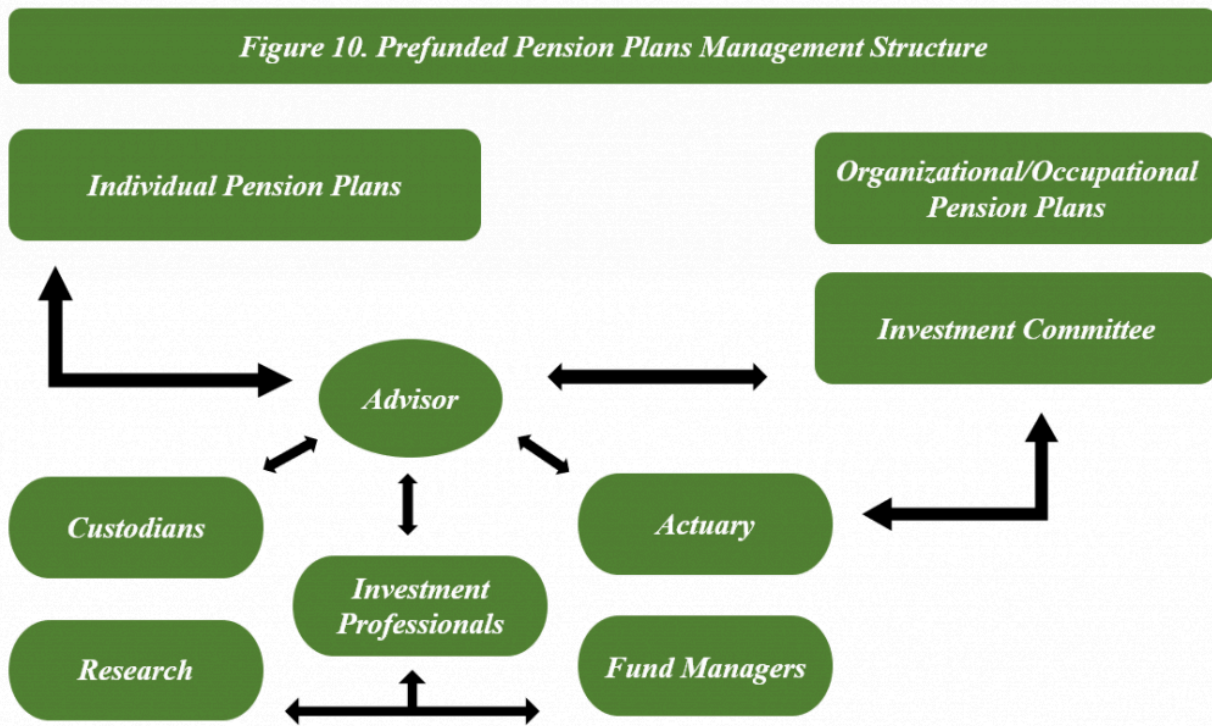


Figure 10. Prefunded Pension Plans Management Structure

The back-office functionalities such as custodians market research consultants, portfolio managers, etc., are individuals or organizations independently owned with their own separate organizational structure. The service provider, such as the custodian or the investment fund, may be a separate organization or a functionally distinct part of the same organization. For example, an individual may have a pension plan such as the Registered Retirement Savings Plan (RRSP) with a bank and be advised by a bank advisor or representative. The decisions will then be sourced out to mutual funds, which may be managed by the investment banking division of the same bank.

For organizational pension plans there will be a pension committee or a pension board that will act on behalf of the individual plan members. Depending on the size and expertise of the collective entity, one or more or part of the pension management functions may be internally managed or outsourced to special purpose organizations, as in the case of individual plan members. Thus, we could have an organizational pension plan with an investment committee made up of volunteers co-opted from the employees and employers of the organization. Depending on the pension design the investment committee may employ representatives. If it is a defined contribution plan there may be employer representation to a committee to decide on the broad savings, investment and strategic goals. However, the actual asset allocation decisions will be left to the employees and their investment advisors; often with limits set by the investment committee in terms of permitted assets. As in defined contribution plans, if the pension plan is a defined benefit or target benefit plan then the employer may take a leadership role in the investment committee as the pension outcomes are part of the benefit package and are viewed as obligations of the employing organizations. If the employing organization is large or if pension plans develop a sectoral blueprint and have pension subscribers from multiple organizations in a sector, as in the case of Ontario's teachers, then such pension organizations may decide to in source or develop intra-organizational expertise in some or most of the pension management roles identified in Figure 10. Alternatively, the pension plan organization may outsource it to a special purpose organization or individuals.

Why is governance required?

To analyze why we need governance we must first make a distinction between principals and agents. In the case of pensions, the principals are the pension plan subscribers and the agents are the various intermediaries who are contracted to manage the pension assets. Principals are entities, who under the system of property rights, have ownership of the resource that is being managed in a contractual relationship. This resource in funded pension plans are pension assets. Depending on pension design, the principals could be individual plan subscribers, as in the case of individual pension plans like RRSPs or the defined contribution plans or it could be organization as the plan provider in the case of defined benefit or target benefit plans. Agents, on the other hand, are the intermediaries that manage the pension assets on behalf of the principals. Examples of agents are custodians, advisers, fund managers, etc., involved in providing advisory investment and back-office functions in pension management.

Governance is required because the goals or objectives of the principals or pension plan subscribers and the agents or plan managers are not the same. The goal of the owners of the pension assets or

the plan subscribers (principals) is to get the maximum value of their savings assets in retirement at the least costs or contributions during their working years. Managers or agents tasked with pension management have a different goal. The agent's goal is to preserve their human capital, their professional reputation. The principals and agents thus pursue different objective or goals in pension management. Principals seek to maximize their finance capital and agents will seek to minimize their human capital risk. The agent's earnings are from the services they offer to various pension subscribers. The agents, by providing their expertise, put their human capital at risk. If the returns from the invested pension assets are not as expected or if they are shown to have under performed, the future earnings of the agents from their human capital will be reduced. A basic tenet of finance is that higher returns carry higher risks. Pension subscribers desire for higher returns will have the consequence of increasing the human capital risk of the agents that are tasked with the responsibility of realizing these higher returns.

In addition to having different objectives, principals and agents do not have the same level of information about the management of the assets. Principals are the owners of financial assets. Agents are suppliers of expertise to manage the assets on behalf of the principals. Information asymmetry arises as the agents who are entrusted with day-to-day management know more than the principals and have greater control over decisions regarding the deployment of the assets. There are two sources of tension in pension governance that provides the justification for the use of various mechanisms to manage the relationship between pension subscribers (principals) and the various service providers (agents). First, the differences in interest/objectives between the principals and the agents. The principals will seek the highest possible returns at the lowest possible costs. The agents on the other hand will seek to maximise their future earnings by taking decisions that minimise the risks to human capital. The second source of differences is the information asymmetry between the principals and the agents. This creates the governance challenge. In the system of property rights, the owners or plan subscribers (principals) have the right to expect that the pensions assets be managed to realize their goals and not the goals of the managers or agents. The challenge of governance is to design mechanisms that, given the information asymmetry and the different objectives, agents manage the pension assets in the best interest of the principals?

Given the differences in objectives and the information asymmetry between the principals and agents is required what can be the contracts that govern their relationships and the decision environment?. One possibility is that the principals write a complete contract specifying every eventuality that may arise and make the agent sign that contract. This will ensure that the agents or pension service providers' decisions are in the interest of the principals or the plan subscribers. However, It may be impossible to write a complete contract. Given the central role of expectations in finance the future cannot be specified completely as not all eventualities in the principal agent relationship can be anticipated and negotiated in advance. Furthermore, it is expected that the agents will have greater expertise in the management of the assets and their professional judgement cannot be second guessed and should not be constrained by the principal. Thus, contracts between principals and their agents being incomplete. Agents will be hired by principals on the basis of specified expectations. These expectations will be periodically reviewed in light of new information.

In such a contracting relationship, governance mechanisms are used to interpret the incomplete contracts between the principals and their agents on an ongoing basis.

Corporate Governance versus Pension Governance

The governance of publicly listed corporations has been evaluated by several studies. (World Bank, Love 2016). The emphasis in these studies has been on the structure of the governance mechanisms required to interpret the incomplete contract between the shareholders (owners) – the principals and the firm’s top management the agents. The corporate governance mechanisms that have proposed to bridge the incomplete contracts between the principals and agents can be classified in terms of external and internal mechanisms. As shown in Figure 11 the internal governance mechanisms are the board of directors, the compensation mechanism of the top management, and the proxy process in annual general body meetings of publicly listed corporations. The external governance mechanism is the market for corporate control or the hostile takeover of corporations.

The corporate governance literature also focuses on the structure of the internal and external mechanisms that increases the accountability of the agents towards the principals. According to this literature, a greater percentage of outside or non-executive directors on the corporate board, or the separation of the posts of the chairperson and the chief executive officer will increase the accountability of the agents towards the principals. Similarly, stock options or paying a greater percentage of the top management compensation in the company’s stocks that can only be sold later, is expected to align the management’s interests with the shareholder’s or the owners of the firm. If the shareholders do not like the decisions of the top management or the board of directors, they can bring resolutions at the annual general body meeting (or the AGBM) and vote against the continuation of the existing top management or board members by bringing in resolutions in person or through a proxy process in a general body meeting of the shareholders.

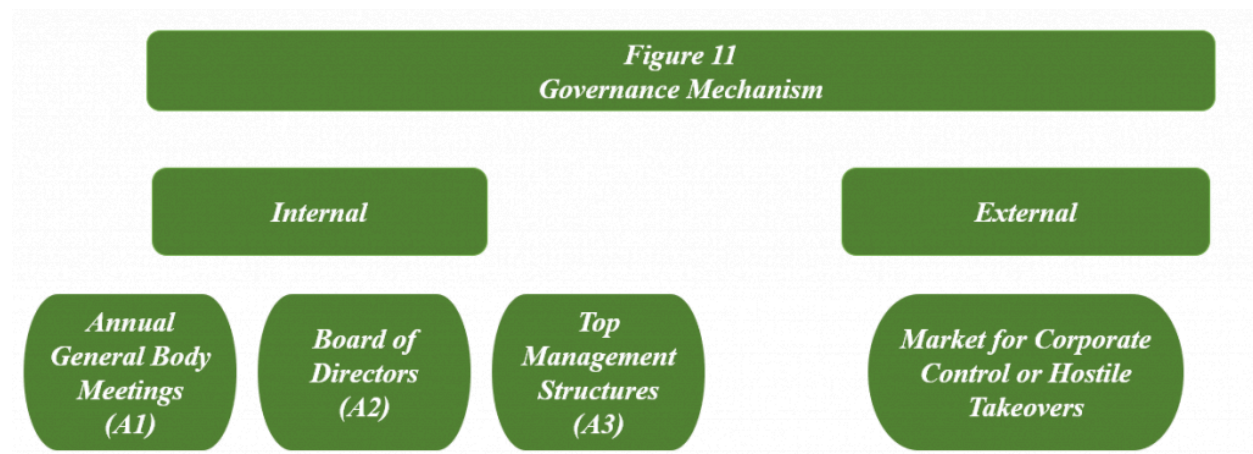


Figure 11. Governance Mechanism

The external control mechanism is the market for corporate control or the hostile takeover market. If internal control mechanisms fail, the shareholders of publicly listed corporations have the option of selling their shares in the company. The hypothesis is that if shareholders are not happy with

the management they can sell their ownership, which will lower the company's stock value. This will invite the interest of outside management teams or bidders who will see the prospect for gain in the form of undervalued stocks of the company, because of the poor decisions of the existing management. The outside management team or bidders will start buying the company's stock and will soon have enough voting stock in their command to oust the incumbent management and appoint new management and possibly restructure the company.

The corporate governance literature can provide important insights into the governance of pensions. However, there are important caveats that must be applied to the applicability of the external and internal mechanisms of corporate governance of publicly listed corporations, to the governance of pensions. In the case of pensions, the principal-agent relationship is involuntary for a retiree. You can choose to become shareholders, however you do not have a choice whether to retire. You may defer retirement but not decline to be a retiree. Thus, the level of information gathering and involvement that may be the norm for a shareholder cannot be expected of a pension holder. By choosing to invest in the financial market the investor is expected to be cognizant of the risk- return trade-off. The same cannot be said of pension plan holders. Pensions are involuntary intertemporal choices that have multi-generational implications and represent a challenge for both individuals and societies. This was discussed in the module on design. In intertemporal choice, the long-term is not represented by merely applying exponential discounting of the future. Our choices and decision behavior reflect our bounded rationality. Evidence from studies on ecological rationality as discussed in the topic on intertemporal choice, show that the process and fairness of decisions are important concerns in intertemporal decisions.

Furthermore, not all the mechanisms of corporate governance available to public listed corporations, are available for pension plan governance. To recap, pension subscribers, can have individual pension plans, or they would be members of a pension plan sponsored by their employers or be contributing to publicly mandated plans like the CPP. The availability of the different mechanisms for these various pension plans is summarised in Table 11. In organizational pension plans, pension subscriber's as principals, only have an indirect role. The extent of the individual plan members' influence on internal pension mechanisms will depend upon pension design. In employer sponsored defined benefit plans the influence will be indirect through committees tasked with governance. However, these committees owe their primary obligation to employers. Both the employers and the employees consider the accrued pension benefits as deferred compensation. Hence the expectation is that this is the employer's obligation and therefore pension governance of defined benefit plans owe their primary accountability and control to the employers. In publicly managed pension plans, like the CPP, influence of plan subscribers is nearly non-existent. Influence is primarily exercised through the electoral voting process. The preferences of the plan subscribers are embedded in the social choice functions.

In privately managed individual plans, internal governance mechanisms is ineffective in reducing the agency problem as financial advisers are in possession of superior information and training and the levels of financial literacy amongst plan subscribers is low. Furthermore the oversight from regulators is low or non-existent. Financial services has resisted the demands that they be fiduciaries

in their advice to the clients. They also are likely to be self-policed by their industry associations and statutory bodies are often subjected to the revolving door of regulatory capture.

The market for corporate control is available to plan members. Individual plan members can move to a new advisor. However, the effectiveness of this external mechanism is doubtful. The evidence on financial literacy and financial capability shows that access to the market for corporate control is of little practical value for individual plan members. Most individual plan subscribers lack the financial education and access to information to effectively hire and fire financial advisors based on performance. There is a lack of evidence to support any conclusion about the input organizational plan members may have on the hiring and firing of managers.

In governance of organizational pensions, the market for corporate control is not an option. In publicly managed and privately funded plans, like the CPP and the occupational pension plans, there is no market for corporate control. Participation in these plans. Membership or enrollment to these organizational plans is mandatory. There is no conception of exiting an occupational pension plan. It is unreasonable to expect that a person will change their job because of dissatisfaction with the way pensions are being managed. There may be significant decisions required and costs to be incurred in the reassignment of accrued benefits of occupational pension plans if the employee were to leave the organization.

The accountability of the internal governance mechanisms to pension asset owners is limited as they do not have voting rights that shareholders can exercise as in the case of Annual General Body Meetings of publicly listed corporations. The CPP for example, is a crown corporation and the government in effect is the only shareholder. The governing boards of pension organizations are typically industry professionals who may have potential for conflicts of interests in their ongoing or potential future relationships with the financial services industry. The situation is very similar in occupational pension plans but more so in a defined benefit plan. If the organization offers a defined benefit plan, participation is mandatory. However, given the defined benefits promised by employers typically they do not recognize the need for a transparent governance. Too often occupational pension plans are managed as a subset of the organizational goal and often the assets are either underfunded or utilized in the larger context of the organization's financial expediency. Employees are often blindsided by corporate or organizational developments that make the promised benefits uncertain. As in the case of prominent corporate and municipal bankruptcies like Norton; Detroit and now Sears employees find out too late and even then, are powerless to intervene when they find out that their pension assets were only book values and in jeopardy from creditors or simply not have any backing of real assets.

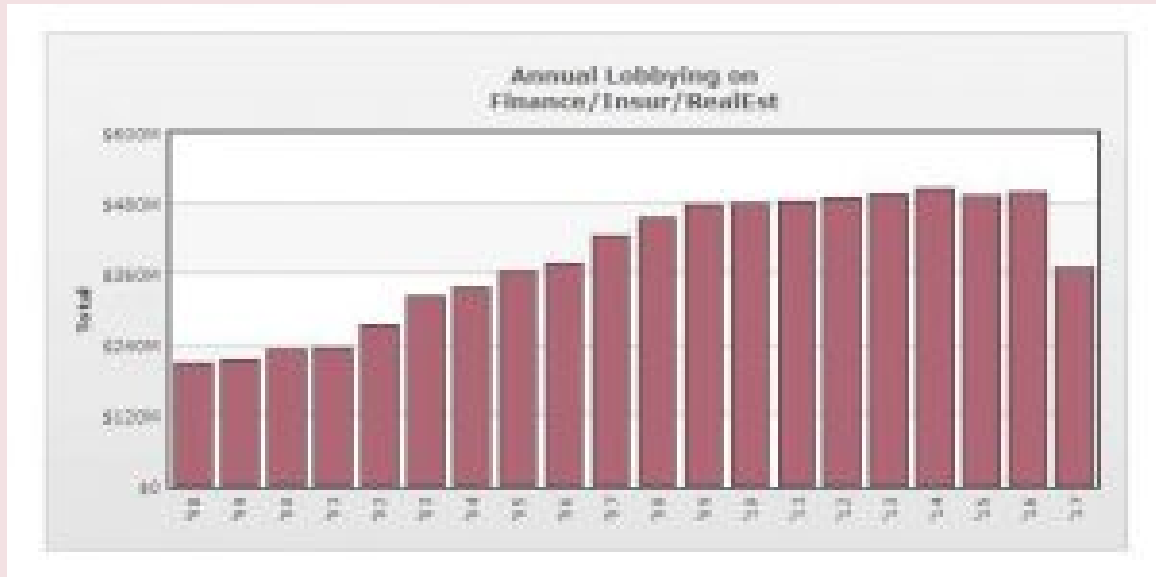
In the individual pension plans and in the occupational pension plans with defined contributions, the governance challenge is severe. There is in effect no governance in place. The only recourse is the legal framework that is often insufficiently referenced by the regulatory framework. The contested relationship in these individual plans and defined contribution plans is between the individual and the organizational infrastructure of the agents. The governance challenge of information asymmetry could be between the individual as a principal and the multi layered agency fronted by the financial advisor. The laws and rules are severely contested.

Examples

[US Lobbying Example:](#)

The financial sector is far and away the largest source of campaign contributions to federal candidates and parties, with insurance companies, securities and investment firms, real estate interests and commercial banks providing the bulk of that money. –Alex Glorioso

Updated March 2016 from the Centre for Responsive Politics the US Case is not unique. It is probably the only one where we have collated information.



by the disproportionate interests of the agents and often subject to what has been termed as [regulatory capture](#). Regulatory capture has been widely recognized in the literature as a phenomenon where top professional financial services have a revolving door of responsibilities alternating between agencies intending to regulate financial services and jobs in the financial sector. This relationship is further skewed in favor of the agents by their insistence on suitability as a basis for their advice and recommendation to the pension subscribers. Further, the industry's insistence on self-policing any dispute in the quality of services provided by the agents to the principals through its industry association is not very reassuring to the individual pension subscribers. In the case of individual and defined contribution pension plans the governance challenge is further exacerbated by the individual plan holder's limited financial capability. Meta-analysis of the research on financial literacy demonstrates that it is not effective in enhancing the financial capability of the individual to engage with the agents.

Table 12

Summary of availability and potential role of Governance Mechanisms in various Pension Plans

These factors make pension governance a daunting challenge that requires a fundamental rethink of the approach to governance. Mere rule making or setting up the structure in terms of internal (or external) governance mechanism will not deliver the outcome of a sustainable pension. Dramatic examples of a failure of corporate occupational pension plans, like the case of Sears most recently, and the many instances of financial misrepresentation in individual plans highlight a severe governance deficit in funded plans. Identification of effective governance is important for sustainability and reducing dependence on the pay as you go (PAYGO) component of the pension plan system.

The focus of corporate governance of publicly listed companies is on accountability. Designing governance such that it provides a superior decisions context is not the primary concern. This is a major drawback of the corporate governance literature on publicly listed companies. Given the goals of pension governance – financial security in retirement providing a superior decision context is important. How pension governance can be structured to provide a better decision context will be discussed in the next two topics in this module.

Topics to Explore

1. Human Capital Risk
2. Information Asymmetry
3. Agency Problem
4. Incomplete Contracts
5. Internal and External Governance Mechanisms
6. Stock-Options
7. Market for Corporate Control

SAMPLE QUESTIONS FOR REVIEW

SAMPLE QUESTIONS FOR REVIEW

1. Why is governance required? Explain using the insights from finance and human capital risks; information asymmetry and incomplete contracts.

2. What are the various mechanisms available to bridge the incomplete contracts between shareholders and managers. Which of these mechanisms be applied to pension governance?

TOPIC 2: PENSION GOVERNANCE - THE ROLE OF LEARNING

Rajeeva Sinha

Learning Objectives

At the end of this topic, you should be able to answer these questions:

- What is the 'broken agency problem'? Why does it apply to pension governance?
- What are strongly non-contractible incomplete contracts (SNIC)?
- What is the role of learning in SNIC?
- What is the distinction between self-interest and opportunism
- Why is opportunism a better basis for identifying the learning mechanism for SNICs
- What is the distinction between opportunism as an attitude and opportunism as a behaviour

We learnt earlier in this module that the role of governance mechanism is to bridge the incomplete contracts between principals and their agents. The literature on corporate governance is vast. However, the evidence from this literature cannot be applied to pension governance without accounting for the specific attributes of pension management. First, pension decisions are intertemporal, their implications extending over multiple generations. Second, the agency relations are multilayered and complex as outlined in Figure 10. Third as summarised in Figure 12, not all mechanisms of corporate governance are available or effective in resolving the agency conflicts in pension governance. The availability and effectiveness of individual governance mechanisms will also depend on the pension plan design and ownership of assets. These distinctive attributes require that we develop a framework of governance that account for the specific context of pensions. This what we will do next. The goal is to identify a pension governance framework that not only ensures accountability and control but also provide a superior decision context for pension management.

Governance as a Process – the broken agency problem

The specific challenge of governance of pensions is characterized by Clark and Urwin (2017) as the 'broken agency' problem. The concept of broken agency is borrowed from the literature on infrastructure construction and governance. Pension and the infrastructure industry both share

an intertemporal decision horizon. This implies that the outcomes of decisions will evolve and be apparent after a long period of time. Also as in the case of pensions there are multiple agents there are multiple agents involved in the construction and management of infrastructure projects.

Henisz & Levitt (2009) describe the broken agency decision problem as follows: separate individuals, different departments within an organization, or different companies incur the costs without sharing common accountability, the risks and benefits associated with each phase of a building project's life cycle, so no individual or firm on the project has a truly multidisciplinary, life cycle perspective. The individual or firm that bears capital costs does not usually bear the full lifecycle operating costs. Overall project benefits may conflict with individual participants' self interests and so tend to be ignored. This "broken agency" is present in each phase of a building's life cycle because of vertical fragmentation of the industry (Henisz & Levitt, 2009).

Recall Figure 10 on pension management structure in the previous topic. Clark and Urwin (2017) propose that a similar 'broken agency' exists in the context of pension management. The decision horizon is intertemporal and as the figure on pension management in the previous module shows, the financial services industry is similarly vertically integrated and there are many entities in the financial services industry that contribute to costs and benefits that are shared on an asymmetrical timeline. The agents are not compensated after the final outcomes of the pension assets or proportionally to the payouts based on defined benefit plans. The compensations to the agents are in the short-term and the perceived benefits of their decisions are only realized in the very long-term. A pension governance aiming to ensure accountability, control and a superior decision context has to account for the 'broken agency' aspect of pension management.

As pointed out earlier, governance mechanisms are needed because of the incomplete contracts between principals and their agents. Schwartz (1992) lists five reasons for contractual incompleteness:

1. Vague wording of the contracts
2. Failure to contract an issue
3. Prohibitive cost of writing a complete contract
4. Asymmetric information between the contracting parties. The asymmetric information can be observable and verifiable ex post. A contract is considered **weakly non-contractible** if the asymmetric information can be observed but cannot be verified ex-post. A contract will be **strongly non-contractible** if the information can neither be observed nor verified ex-post.
5. Heterogeneity, or variations in expectations Another source of contract incompleteness is heterogeneity or variations in expectations on one side of the market. Given this heterogeneity a complete contract will be drawn if the uninformed principals screen the informed type. Contracts will be incomplete when the screening is not feasible or when the informed agent cannot disclose the information credibly.

The key objective of pension governance is to observe and verify on behalf of the principals, the actions and their outcomes, of the multiple agents involved in pension management in an

incomplete contract environment. Incomplete contracts we have noted earlier in the previous topic can be of two types – strongly non contractible and weakly non-contractible. If the contracts are strongly non-contractible the verification and observability of such incomplete contracts cannot be based on exogenous criteria. In such a contracting environment, verification will be a function of the subjective interests of the parties involved. At any point in time the principal will get some information on the extent of fulfilment of the contract and receive information that allows the principal to form expectations regarding the possibilities being fulfilled in the future. New expectations may also be added to the incomplete contracts. Thus, the degree of observability and verifiability is endogenous to the incomplete contracts.

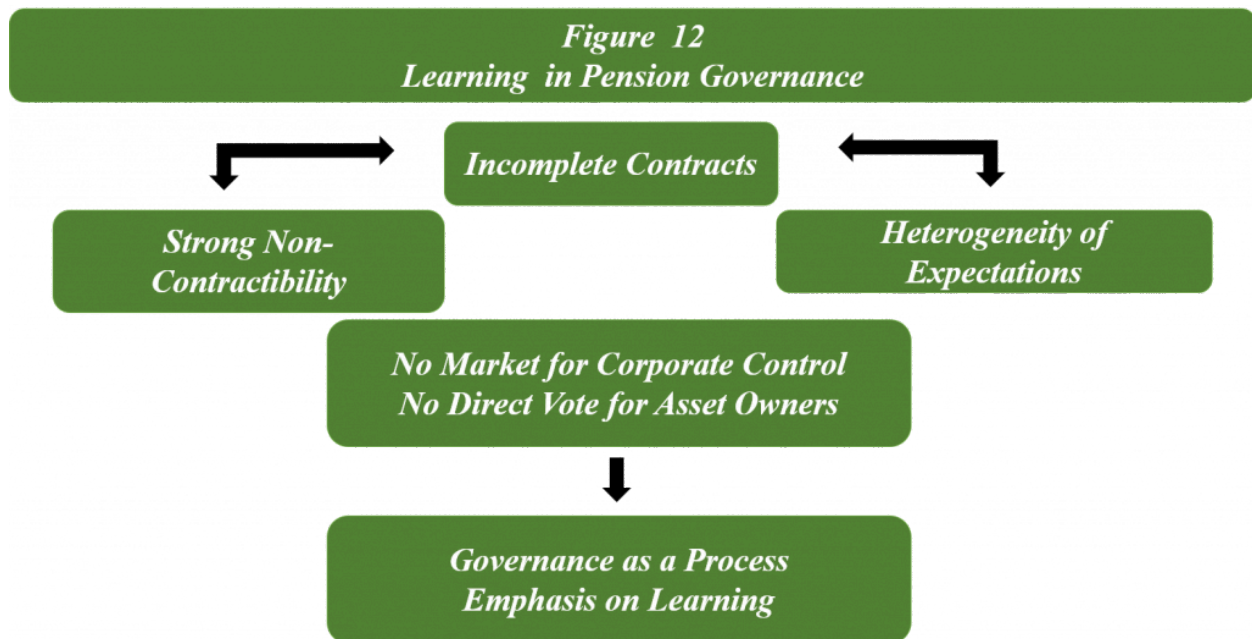


Figure 12. Learning in Pension Governance

The relationships between the principals, the pension plan subscribers and their agents, the financial services providers, are based on **strongly non-contractible incomplete contracts or SNICs**. Pension decisions are intertemporal and are embedded in 'broken agency' relationships. Expectations of pensioners can change over the life time of the pensioners or the principals. It would be simplistic to assume that these expectations and obligations are completely identified at the commencement of the pension plan membership and remain unaltered during the process of accumulation and deaccumulation of pensions. The pensioner is likely to receive updates and information that induces them to revise their plans and expectations about the future. For example, the plan subscriber may add new expectations depending upon changes in their circumstances such as in employment or health. An added attribute of the strongly non-contractible incomplete contract is that the decision context is embedded in the 'broken agency' context. These attributes of the incomplete contracts between pension subscribers and their agents or plan service providers makes it difficult to observe and verify the strongly non-contractible incomplete contracts. The requirements of this observability and verification process we examine next.

Endogenous Learning Mechanisms: Characteristics

With SNICs, observability and verification has to be endogenous to the governance process and not based on externally observable criteria or reporting. This will require a learning mechanism. What will be the characteristics of such an endogenous learning mechanism? Learning is not just a passive exchange of information between principals and agents. It is about how information is accrued and how it is processed. Learning acquires significance not only in the minimization of the agency problem but also the basis for superior intertemporal pension decisions as it will facilitate the ongoing interpretation of SNICs for both pension plan subscribers and the various financial service providers. .

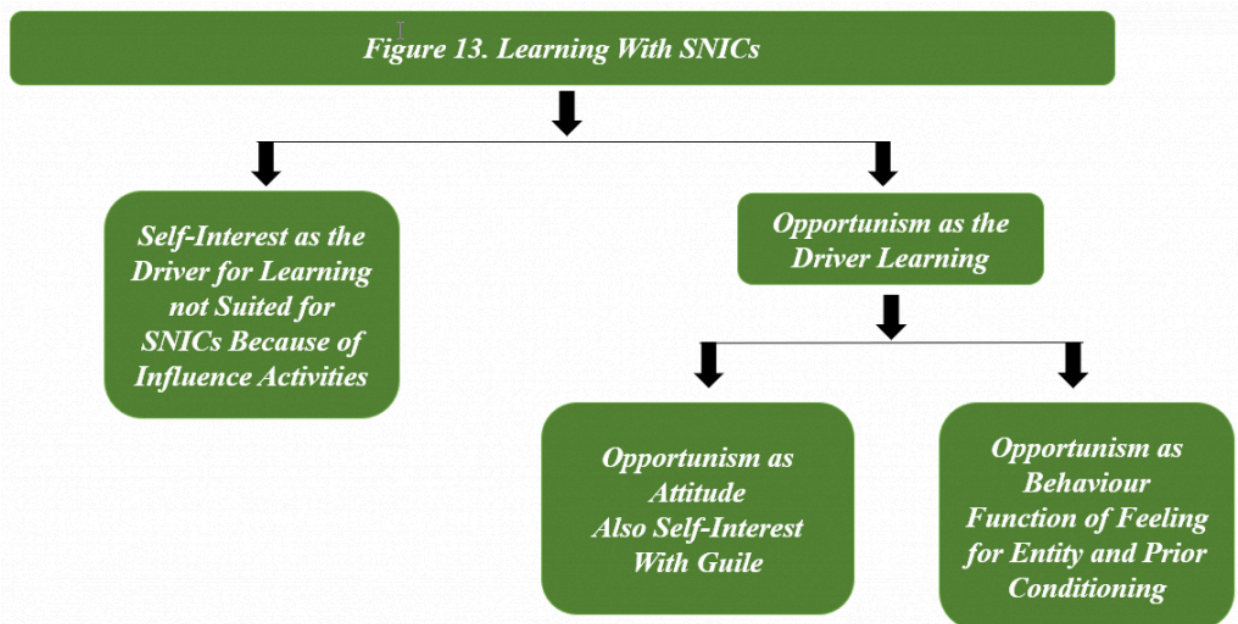


Figure 13. Learning With SNICs

In the rational actor framework, self-interest is a primary driver for learning between principals and agents. However, most information is not innocent and suffers from misrepresentation as it is gathered and communicated in the context of self-interest and with an awareness of decision consequences. Milgrom and Roberts (1988) term such information manipulation and activities ‘influence activities.’ Ghosal and Moran (1995) contend that self-interest is inadequate as an explanation for learning in the principal agent interaction based on SNICs. The assumption of *self-interest* results in decision behaviour is motivated by the agent’s preferences. Self-interest assumes that the agent will disclose all pertinent information and meet all obligations expected of him that are consistent with the exercise of self-interest. However, in pension governance we have three factors to consider:

1. strong non-contractibility;
2. heterogenous expectations that given their intertemporal horizon are evolving; and
3. broken agency relationships

The presence of these factors in pension governance relationship between principals and agents implies that we cannot assume that all pertinent information is disclosed. It may well be that in the information is not yet in the cognitive frame of the principals and agents or not observable or verifiable.

Ghosal and Moran (1995) describe the incentive structure in the principal agent relationship of pension governance as opportunism. **Opportunism** is self-interest pursued with guile. Opportunism recognizes the role of influence activities in the observability and verifiability of information as in SNICs characterized by heterogenous expectations and 'broken agency'. Recognition of opportunism implies that agents will not disclose all obligations expected of them and fulfill all obligations under the contract. A superior learning mechanism can be identified when we incorporate opportunism and not self-interest as the basis for sharing information in the interactions between principal and agent in pension management.

A more sophisticated learning mechanism can be identified when we make a distinction between opportunism as an attitude and opportunism as a behaviour. The former is a product of the human condition and the latter a product of institutions and technology. **Opportunism as an attitude** involves the proclivity or inclination of the individual to act opportunistically to pursue self-interest with guile. **Opportunism as behaviour** is positively related to expected benefits and is negatively related to safeguards and controls in the institutional and technological environment. Thus, opportunism as behaviour can be a variable of the institutional context. In the design of an endogenous learning mechanism in pension governance, we must recognize the existence of these two forms of opportunism. A learning mechanism that exclusively focuses on incentivising opportunism as an attitude, that is aligning self-interest of agents to the principals or pensioners, is not likely to succeed because of SNICs. Corporate governance focuses in publicly listed companies on the use of stock options to align top management incentives with shareholders has had limited success and was distortionary as noted in multiple accounting scandals involving top management^[1]. Enron and WorldCom are the more dramatic examples of the turn of this century and ever so often we are reminded of similar corporate episodes of top management malfeasance. When the primary reliance of executive compensation was on stock options, they became a disproportionate share of top management's net worth. This was the primary reason for various accounting manipulations by top management in their effort to protect their own net worth. Moreover, incentivising fund managers by linking their compensation to quarterly or annual returns is not a good match of the investment horizon of pensioners with the career horizons of the fund managers.

The strong non-contractibility and heterogeneous expectations characteristic of pension governance in a broken agency context requires an emphasis on learning mechanisms that focuses on opportunism as a behaviour. The focus on opportunism as a behaviour does not imply that the governance mechanism do not account for opportunism as an attitude. The structure of the governance process will be such that in the design of external or exogenous criteria to curtail

opportunism as an attitude care will be exercised that these very mechanisms do not exacerbate opportunistic behaviour. It is important to remember that opportunistic behaviour will be difficult to observe from the outside. Thus stock options to motivate top management to behave in the interest of shareholders is an example of an exogenous criteria designed to curtail opportunism as an attitude. However, as these stock options are a large proportion of the management's compensation and net worth, they have been a significant influence on management decision behaviour that have reduced shareholder value as several high profile examples have shown. .

Two factors influence opportunism as a behaviour, prior conditioning and feeling for the entity. **Prior conditioning** will be a function of the social cultural and political norms of each society. An example of prior conditioning in the corporate governance of publicly listed corporations is the choice between profit maximization versus stakeholder theory as the goal of the firm. For pensions, prior conditioning will be in the social contract environment underpinning the pension system a country. In the privately funded and privately managed pension quadrant, prior conditioning could be provided by the perspective on income replacement rate (IRR) and recognition of fiduciary responsibility as the basis for the relationship between pension subscribers and pension plan providers. If plan subscribers believe that pensions are an opportunity to realize life long aspirations and not just old age financial security then this will lead to a different set of expectations and opportunistic behaviour. pension plan subscribers will expect higher returns on their pension savings/assets. Given the risks that will accompany such high return strategy pension service providers will invest with short term goals as there is little evidence to suggest that high returns strategy can be sustained in the long run.

Opportunism as a behaviour will also be a function of the **feeling for entity**. This perception emerges from the contracting parties' assessment of each other. Thus, if we continue to focus on financial transactions and quarterly financial returns or what Keynes referred to as 'beauty contests', the feeling of entity is not engendered in the relationship between plan subscribers and plan service providers. Thus, opportunism as a behaviour becomes endogenous to pension governance. If fund managers are judged primarily on quarterly reports or what Keynes termed as 'beauty contests', it will reduce the feeling for entity or for the relationship between principals and agents. We now have extensive evidence that it is difficult to beat the market on a consistent basis purely based on financial transactions based on arbitrage opportunities. We know that active management and market timing do not yield above market returns and raises the cost of asset management (Ambachtsheer, 2016). This has led to a growing assertion now increasingly backed by empirical data that pension management outcomes will be superior if the focus is on metrics for long-term investments and not on quarterly performance reports. A focus on the long term away from 'beauty contests' and quarterly reports will lead to a decision environment where potential for opportunism is reduced. This will be possible if we are able to identify and adopt long-term metrics and flow of information between the principals and agents.

The detailed discussion and identification of the incomplete contracts between owners of pensions

funded assets and agents entrusted with their management highlights the important role of learning in the governance of funded pension assets. The learning process to bridge the incomplete contracts between pension owners and the various levels of the financial services industry or the agents has to incentivise opportunism as an attitude but the focus has to be on reducing opportunism as a behaviour. This will require prior conditioning and a feeling for the entity in the management of incomplete contracts. At a higher level, both these requirements will be a function of the social contract environment of the national pension system. At an operational level this will mean an important role for a formalized regulatory structure, recognition by the agents of their fiduciary role and a standardized integrated reporting structure that is transparent and reliable. We discuss this in the next two topics.

Exercises

CONCEPTS FOR REVIEW

1. The Broken Agency Problem
2. Strongly Non-Contractible Incomplete Contracts
3. Self-Interest as a Learning Mechanism
4. Opportunism as a Learning Mechanism

Exercises

REVIEW QUESTIONS

1. What is the 'broken agency' problem? Why does it apply to pension management? Explain.
2. Discuss the implications of SNICs for pension management.
3. Given influence activities why opportunism and not self-interest will be the basis for learning in a contract environment characterized by SNICs; heterogenous expectations and a 'broken agency'?
4. Why should we focus on opportunism as a behaviour in the design of learning mechanism? What implications does opportunism as a behaviour have for pension investments?

TOPIC 3: MODES OF LEARNING

Rajeeva Sinha

Learning Objectives

At the end of this topic, you should be able to answer these questions:

- What are the different modes of learning available to bridge SNIC & 'broken agency' problem in pension governance?
- What mode of learning is best suited to bridge SNIC & 'broken agency'?
- What are focal points and 'fire alarms'?
- What are the design implications of a mixed mode of learning in pension governance?

In this topic we will discuss the mode of learning that is best suited for the governance process. In the previous topic we analyzed the contracting environment between principals and their agents in pension management. We learned that incomplete contracts between principals and agents are strongly non-contractible. The principals do not have observable and verifiable information to evaluate actions and outcomes of the agents. The strongly non-contractible incomplete contracts (SNIC) are embedded in a principal agent relationship characterized heterogeneous expectations and by 'broken agency'. In such a contracting environment the governance must be a process that seeks to reduce opportunism as a behaviour by identifying an endogenous learning mechanism that actively considers the attributes of the social and cultural norms (the prior conditioning) and promotes the feeling for the entity. The identification of such a learning mechanism is the goal of the discussion in this topic.

Modes of Learning

Under SNIC, as in pension management, the pension subscribers or principals and their agents or the different functionaries in the pension management industry are in a strategically interdependent relationship. Moulin (1995) identifies three modes of strategic co-operation or learning in strategically interdependent relationships. These modes of co-operation are:

1. The Direct Agreement Mode;
2. The Justice Mode; and
3. The Decentralized Mode

Each of the three modes of co-operation incorporates a learning mechanism. Which one of the three learning mechanisms is appropriate in the context SNIC & 'broken agency', to reduce opportunistic

behaviour in the relationship between principals and agents in pension management? This we will evaluate this next.

The Direct Agreement Mode

The **direct agreement mode** is independent of any institutional context as there is face-to-face transaction. Given SNICs between plan subscribers and financial service providers; heterogeneity of expectations and 'broken agency', this mode of learning is unsuitable for pension governance as it will require that the pension subscribers (principals) replicate all management functions by directly negotiating every stage of the pension management process.

The advisor-client relationship in individual pension plans, such as the Registered Retirement Savings Plans (RRSP) in Canada, is the closest example we have of learning in direct agreement mode. However, being free of the institutional context, this mode does not inform us about information access, quality, or decision capability of the contracting parties. This is of crucial importance in a relationship of strategic interdependence characterized by SNIC and 'broken agency', as in the pension management process. There are very debilitating challenges to this mode of learning in pension management. First, the agents do not recognize their roles as **fiduciaries**. The financial advisors subscribe to a suitable standard of care, which is a problem when information exchanged is both non-observable and non-verifiable and there are multiple levels of agents who directly interact only with the financial advisors. Furthermore, there is no clear evidence to suggest that individual pension subscribers as principals have the required financial capability to monitor and take financial decisions (IBRD, 2008). The evidence on financial capability is that individuals lack the capacity and opportunity to take financial decisions. A meta analysis of financial literacy programs shows that most interventions to promote financial literacy have little or no impact in promoting financial well being.

The Justice Mode

In **the justice mode** a judge replaces the learning mechanism and decides the fair share of surplus generated by the strategic co-operation among the contracting parties. There are two requirements for the justice mode to work. First, the judge as an arbitrator will have to be accepted as equitable or fair by both the pension subscribers and the pension service providers. Second, the judge will have to be omniscient that is now and forecast the probability of every potential outcome. This is improbable in a SNIC environment; with heterogeneity of expectations and 'broken agency' characteristics of pension governance. There is no room for bounded rationality in the justice mode. The formula for fair and just assessment of expectations and obligations must measure existing and evolving all aspects of similarities and differences in the expectations and obligations of the pension subscribers and the multiple layers of agency in the pension management process. It is difficult to imagine an indivisible collective authority representing all pension subscribers and the agents.

Without a benevolent and omniscient dictator, the only option in the justice mode is to devise mechanical rules. This goes against the focus of pension governance – reduction in opportunistic

behaviour. Reduction in opportunistic behaviour requires a feeling for entity which will not be enhanced by the adoption of mechanical rules in the conduct of a strategic relationship between pension subscribers and pension service providers. There is also the issue of acceptability of pension management decisions. The acceptability of decisions will depend on whether the parties understand the decision process. This mode of learning will not reduce opportunistic behaviour.

The Decentralized Mode

In the **decentralized mode** decision making power is distributed among both principals and agents. Co-operation takes place in strategic interactions based on conjectures about each other's expectations. The basic framework of expectation formation in the relationship between pension subscribers and the pension services providers is the property rights view. Pension subscribers as owners of pension assets can choose institutional structures or pension design, governance and investment structures, that allow them the freedom to pursue their objectives. In effect the pension subscribers as principals can adopt a dominant strategy. In a two-person game, strategy L by a player A is a dominant strategy if no matter how the other player responds, strategy L will maximize player A's pay off. Strategy L is unambiguously the best strategy for player A even if he or she does not have the slightest idea of how the other player(s) will react. Thus, player A's behaviour will be insensitive to the amount of information possessed by other players or their preferences.

The use of quarterly performance data or a similar checklist of performance indicators in the hiring and firing of fund managers or other functionaries in the pension management process are examples of the use of dominant strategy. The learning mechanism in the dominant strategy is that the plan subscribers, through quarterly assessments of plan performance, hire and fire managers and thereby unilaterally impose sanctions on the agents in the pension management process. By providing information in this form, pension subscribers (principals) aim to establish expectations and thus elicit co-operation from managers (the agents) and ensure returns on their invested pension assets are maximized.

Such governance structures will elicit a response from agents or managers/advisors involved in the pension management process that will seek to minimize their own human capital risk. Psychoanalytic responses of managers faced with such a dominant strategy is one of unfairness, subjectivism and irrationality about the event. Managers or agents will have a significantly reduced feeling of entity. This feeling for the entity is one of the determinants of opportunistic behaviour. It increases the demands on the governance structure of pensions. Opportunistic behaviour on the part of agents will become endogenous and a function of the governance structure. Instead of reducing opportunistic behaviour the pension governance structure will exacerbate the problem of opportunism. In a 'broken agency context', this will be a further motivation to book profits in the short run and postpone costs.

We find that none of the three modes of learning can be used directly to set up the endogenous learning mechanism for the governance of SNICs between plan subscribers and financial service providers. The direct mode cannot be implemented, given SNICs; heterogeneity of expectations;

'broken agency. The learning mechanisms in both, the justice mode and the decentralized mode of strategic co-operation will increase the problem of opportunism in pension management relations. However, a mixed mode called the **Procedural Justice Mode** based on a combination of the justice and decentralized mode can be used to set up the framework for learning between principals and agents in pension management. We find that a mixed mode learning will minimise both opportunism as a behaviour and opportunism as an attitude by providing the prior conditioning and promoting the feeling for the entity. This we discuss in the next section.

A Mixed Mode: Learning in the Procedural Justice Mode

In the Procedural Justice Mode learning is a process in which principals and agents construct approximate models of the decision environment that is updated as more information becomes available (Salmon, 1995). This mode of strategic co-operation can enhance the *feeling for entity* and minimize the scope for opportunism as an attitude as well as behaviour. However, minimization of the scope for opportunism will depend on how learning is specified in the procedural justice mode. In economics, learning in the procedural justice mode is incorporated using statistical algorithms like the Bayes' rule . This approach to learning does not incorporate the role of the decision environment in shaping strategic co-operation. In the case of pension management with SNIC and 'broken agency as attributes, learning in the procedural justice mode will have to move beyond statistical algorithm of learning from ex post data and revising probabilities of outcomes for the next outcome. In the context of pension management, bounded and ecological rationality provides a more appropriate framework for specifying the learning mechanism. In bounded and ecological rationality learning is shaped by the interaction between the individual and the decision environment and is not the product of a statistical artifact. Such a specification of procedural learning will be conducive to *the feeling for entity* and have the effect of reducing opportunism as a behaviour.

Here is a simple introduction to Bayes' rule from [an article in the Economist](#) (9/30/00).

"The essence of the Bayesian approach is to provide a mathematical rule explaining how you should change your existing beliefs in the light of new evidence. In other words, it allows scientists to combine new data with their existing knowledge or expertise. The canonical example is to imagine that a precocious newborn observes his first sunset, and wonders whether the sun will rise again or not. He assigns equal prior probabilities to both possible outcomes and represents this by placing one white and one black marble into a bag. The following day, when the sun rises, the child places another white marble in the bag. The probability that a marble plucked randomly from the bag will be white (i.e., the child's degree of belief in future sunrises) has thus gone from a half to two-thirds. After sunrise the next day, the child adds another white marble, and the probability (and thus the degree of belief) goes from two-thirds to three-quarters. And so on. Gradually, the initial belief that the sun is just as likely as not to rise each morning is modified to become a near-certainty that the sun will always rise." Extract taken from: <https://www.cs.ubc.ca/~murphyk/Bayes/bayesrule.html>

Rawl's (1971) analysis of procedural justice allows for the incorporation of bounded and ecological rationality in the procedural justice mode of learning. He distinguishes between three modes of procedural justice; pure, perfect and imperfect. **Pure procedural justice** emphasises justice of the procedure independent of the outcome. There is no independent criterion for the right result. There

are however, procedures where the output is considered correct or fair, whatever it is, provided that the procedure has been properly followed. **Perfect procedural justice** on the other hand, is an independent standard for deciding which outcome is just and determining a procedural guarantee to lead to it. Finally, **Imperfect procedural justice** occurs when there is an independent criterion for the correct outcome but no feasible procedure that guarantees to lead to it (Gustafsson, 2002). This differentiation of the procedural justice mode is the basis for a more detailed specification of the learning mechanism that can be used in pension governance.

Given the incomplete contracts in pension governance, characterized by SNIC; heterogeneity of expectations and 'broken agency', only the pure procedural justice mode can be a mode of strategic co-operation between shareholders and managers. Under pure procedural justice the interacting parties have equal opportunities to exchange messages and there is equal influence of messages of all involved in the strategic relationship. The outcome chosen is in the decentralized mode which can involve termination of the relationship with the managers/advisors or the agents. Such decision environments are treated as just and independent of the outcome by all in the strategically interdependent relationship.

The emphasis of the pure procedural justice mode is on the decision process. Procedures can be an end in itself; irrespective of the outcome. Procedures will be the best guarantee for the realization of self-interest (Thibaut and Walker, 1978); as an indicator of group value (Tyler and Lind, 1990) and in the perception of dual obligation (Folger, 1993). Procedures will contribute to the perception of equality which is critical for pure procedural justice. It will also promote the feeling for entity, which reduces the scope for opportunism as behaviour.

Communication Behaviour in the Pure Procedural Justice Mode

Strategic co-operation between principals and agents under pure procedural justice mode requires equal opportunity and influence in the exchange of messages. The outcome chosen from the decentralized behaviour of contracting parties is considered just even if the decision has adverse consequences for one party. Several studies on procedural justice have found a positive association between communication behaviour and perceptions of procedural justice (Greenberg, 1994; Korosgaard, Schweiger and Sapienza, 1995; Miles and King, 1997; Sapienza and Korosgaard, 1990). In the analysis of relationships that cannot be fully specified or controlled in advance of their execution and where underlying expectations can vacillate in unforeseeable ways, the legal literature draws similar conclusions. For the management of such relationships, it is concluded that the learning mechanism will not be limited to processing of information but will have a more pro-active stance based on sustained engagement between the contracting parties in the strategic relationship. Such engagement will depend on relational assets like favourite prior belief, trust and goodwill (Salbu, 1995). Thus, the operative part of the pure procedural justice mode is that there must be equality in opportunity and influence of messages. Procedural justice mode requires a learning mechanism with extensive information processing capabilities based on trust, goodwill and equal opportunity for exchange of information.

Mix of Structured and Unstructured Communication – Deliberative Decisions

Kim and Mauborgne (1998) list three requirements for learning under a pure procedural justice mode in strategic decision procedures: explanation; engagement and clarity of expectations. The pattern of communication that meets the requirements of explanation, engagement and clarity of expectations will require decisions with a mix of structured and unstructured exchange of information and periodicity and intensity of communication. Examples of structured information can be formally identified channels like financial reports, actuarial assessments of pension plans, etc. Unstructured information exchange can be through annual pension meetings, board and committee meetings, social exchanges, professional gatherings, etc. The communication or deliberation between pension subscribers and the manager/advisors will have two attributes:

1. Unstructured communication will be the main mode of interaction or strategic co-operation under pure procedural justice mode.
2. Financial communication and other forms of structured communication will be used as 'fire alarms' to reduce the cost of ongoing communication or deliberation.

Deliberating for a decision is a cognitive process in which the decision maker engages as the decision is framed, as goals and plans are adopted or rejected and as implementation is monitored and plans and goals are modified with new information. This conception of learning identifies the sources of deliberation as the decision-makers own knowledge of (pension plan) organizations; suggestions of support persons; examples offered by outsiders; and existing rules and regulations (Beach, Mitchell, Paluchowski and van Zee, 1992). A decision-making environment based on unstructured communication exchange will not only reduce the agency problem but also improve the quality of decisions as it will provide the basis for voluntary co-operation. Such co-operative behaviour improves the decision frame as there is a greater flow of idiosyncratic information associated with the strategically interdependent relationship, as in a pension plan.

Financial reports are the traditional structured channel of communication. Such forms of information must be simple and standardized to be understood and interpreted by all concerned. Such standardized information is termed as 'focal points' by shareholders (Kreps). Standardized information can be ignored or there are there are two possible other ways in which 'focal points' could be used. Standardized information can be used as a dominant strategy, as 'triggers' to hire and fire managers. If financial reports and other structured information are used as 'triggers' to hire and fire managers, this will go against the requirements of the procedural justice mode. There is in effect no reciprocity in the exchange of information. Pension plan subscribers or their representatives in organizational pensions plans will in effect adopt a dominant strategy. Such use of 'focal points' will lead to a strong perception of unfairness by the agents – the managers/advisors and lack of faith in the authority of principals – the pension plan subscribers or their representatives. This will elicit response or be used as a justification for opportunistic behaviour by agents such as financial and pension advisors, to preserve their human capital. The norm in the management of pension assets

is to either ignore the focal points and decide on prevailing market sentiments or indexing or to use them as triggers as is in the case of earnings reports.

Another possibility is that the ‘focal points’ could be used as ‘fire alarms’ to signal the need for gathering more (qualitative) information. The gathering and communication of structured information serves a ritualistic purpose indicating to the manager/advisors in the pension management process that a proper attitude towards decision making exists. Information is not simply a basis for action but a representation of competence. Thus, the gathering of simple information reflects credible decisions and will contribute positively towards perceptions of procedural justice.

Why and how financial information should be used as ‘fire alarms’? Deliberation or unstructured information is a costly exercise. High intensity deliberation cannot be sustained for long. Conceptually, it will amount to the adoption of the direct agreement mode of strategic co-operation between plan subscribers and the managers/agents and a near replication of all functions in the pension management process. A cost-effective alternative would be to use ‘focal points’ as ‘fire alarms’; as signals for initiating deliberation (McCubbins & Schwartz, 1987). Should deliberation be initiated only when ‘fire alarms’ are sounded and when the ‘focal points’ suggest poor performance? The monitoring authority in our case is the pension subscribers either at the individual or at the organizational levels. Given SNIC in the context of ‘broken agency’, the interpretation of structured information requires a level of awareness. This is only possible if there is ongoing and continuous communication. There is also the issue of reliability of information. Intervention by pension plan subscribers or their representatives in organizational pension plans can be quickly affected if there is a live data base available from continuous low-key deliberation. The framework for information exchange and governance that is proposed is one of low-key deliberation with ‘focal points’ as ‘fire alarms’ signalling the need for more intensive deliberation.

The discussion in the learning mechanism leads to the following inferences:

1. A mixed mode called the Pure Procedural Justice mode will be the most appropriate mode for endogenous learning. Strategic co-operation in strongly non-contractible incomplete contracts and the ‘broken agency between principals and agents in pension management;
2. Learning in the pure procedural justice mode will be based primarily on unstructured communication;
3. Structured communication will be used as ‘fire alarms’ to economize on the costs of gathering unstructured communication and for effective learning. Use of structured communication as ‘triggers will increase endogenous opportunism.

The pure procedural justice mode of strategic co-operation as an endogenous learning mechanism is also consistent with behavioural and ecological rationality as it allows for adaptive cognition; information gathering and fairness in the exchange of information between principal and agents.

The use of the procedural justice mode of learning and emphasis of governance as a process has implications for pension design and investment. Process driven governance requires relationship-

based governance so that qualitative and quantitative information may be gathered. Significant information processing capability is required to engage in a deliberative process driven governance where structured information is not used as ‘triggers’ for hiring and firing decisions of agents. Given the level of engagement and information processing capabilities required to sustain the procedural mode of learning, only organizations with considerable internal management resources will have the capability to participate in such a mode of learning. At the individual level the evidence on financial capability and financial literacy suggests that most individuals do not have the capacity to interact with agents and engage in deliberation.

This has implications for the design of pension systems. Pension systems will have to be designed so that the target rate of income replacement in retirement is achieved by pension plans that are organization-based and large enough to have significant resources to develop internal management capability to engage in deliberative mixed mode of learning that combine structure and unstructured communication in the procedural justice mode. This does not rule out choice-based individual pension plans but they cannot be primarily relied upon to provide old age security.

Even at the organizational level, scale is an important consideration in the effectiveness of pension organizations. Surveys of governance practices show that there is a lack of expertise and focus in the functioning of the pension board and pension investment committees. (Ambachtsheer, 2016, p.90). There is unwillingness to engage and there is an overreliance on agents or advisors who do not recognize their roles as fiduciaries. The pension board and investment committees spend a disproportionate amount of time on administrative and routine compliance reporting and not on strategic issues. Capacity building in boards and investment committees for a deliberative, process driven governance framework requires investment in training on an ongoing basis. This expense is more readily incurred by large pension organizations. These inferences find substantiation in a recent report on Canadian pension plans.

THE CANADIAN PENSION MODEL

IBRD, [The evolution of the Canadian pension model : practical lessons for building world-class pension organizations \(English\)](#).

The examples of good practice discussed in this report are large organization and multisector pension plans.

Exercises

CONCEPTS FOR REVIEW

1. Direct Agreement Mode of Learning

2. Decentralized Mode of Learning
3. Justice Mode of Learning
4. Procedural Justice Mode of Learning
5. Pure Procedural Justice Mode of Learning
6. Perfect Procedural Justice Mode of Learning
7. Imperfect Procedural Justice Mode of Learning
8. Structured & Unstructured Communication
9. Focal Points & 'Fire Alarms'

Exercises

SAMPLE REVIEW QUESTIONS

1. What are the different modes of learning available to resolve an agency problem characterized by strongly non-contractible incomplete contracts (SNICs)? Which mode of learning will be most suitable for pension governance?
2. What are the three requirements for learning under the procedural justice mode. What mix of the structured and unstructured communication will meet the requirements of learning for procedural justice?
3. Financial information is structured communication. Should financial information be used as focal points or as 'fire alarms'? Discuss the role of unstructured communication in resolving the agency problem when you have strongly non-contractible incomplete contracts between principals and agents.

TOPIC 4: ENABLERS OF PENSION GOVERNANCE

Rajeeva Sinha

Learning Objectives

At the end of this topic, you should be able to answer these questions:

- Who is a fiduciary & fiduciary responsibility?
- What is the significance of fiduciary responsibility, stakeholder communication & block chains for pension governance?
- What is Integrated Information Reporting?
- What are Block Chains & their potential for role in pension governance?

Our analysis of governance so far in this module leads us to conclude that a mix of structured and unstructured communication integrated with the pension governance process is the best approach to solve the challenges of strongly non-contractible incomplete contracts (SNIC) and broken agency that is characteristic of the relationship between pension subscribers (principals) and financial service providers (agents) in the pension management process. Further we learnt that the ideal mix of structured and unstructured communication will be the use of structured communication as 'fire alarms; that triggers high intensity unstructured information gathering. We also learnt that to ensure the effectiveness of the 'fire alarms' low intensity unstructured continuous communication should be part of the governance process. However, unstructured communication is both costly and at times problematic given regulations on outsider trading.

In this topic we will discuss three enablers that will facilitate unstructured communication at desired levels to ensure effective pension governance. These enablers of unstructured communication are;

1. Fiduciary responsibility;
2. Stakeholder communication; and
3. Blockchains

The analysis shows that these enablers will motivate the use of structured communication such as financial statements as 'fire alarms' and not as 'triggers' as is the practice in pension governance. The enablers can facilitate a deliberative, process driven governance in a strongly non-contractible incomplete contract environment.

ENABLER 1: Fiduciary Responsibility

A requirement of quality unstructured communication is that principals and agents trust each other. As principal agent relationship is characterized by information asymmetry in contracting environment that is neither independently observable nor verifiable, it is important that principals trust the information and advice provided by the agents. This can only be ensured if the agents recognize their roles as fiduciaries and all agents provide a fiduciary standard of care. This fiduciary standard of care requires that the agents or professionals in the pension management process act in the best interest of the principals to the best of their ability and knowledge using information they have assessed to be reliable. Fiduciary responsibility can be shared but not shifted to another agent. The uncritical use of third-party information by agents in decisions on the principal's behalf is not considered acceptable as per the fiduciary standard of care.

The efforts to transform agents' contributions to professional management of pensions into fiduciary roles is on the rise in pension management circles across the world. Strategically, the pension board trustees (board and committee members) are being reminded of their fiduciary roles by legislation and court judgments. In the US, the Department of Labour (DOL) fiduciary rule was proposed but has since been struck down by the courts as a result of concerted efforts by the financial services industry. The courts did not examine the merits of the fiduciary rule but accepted the plea of the financial services industry that the US DOL exceeded its area of responsibility. There is also a possibility that the Security Exchange Commission (SEC) will introduce a proposal in this area. The SEC has released an investment advice reform proposal that would require brokers to act in the best interests of clients. [The Regulation Best Interest proposal](#) seeks to establishing a standard of conduct for broker-dealers and natural persons who are associated persons of a broker-dealer when making a recommendation of any securities transaction or investment strategy involving securities to a retail customer. The proposed standard of conduct is to act in the best interest of the retail customer at the time a recommendation is made without placing the financial or other interest of the broker-dealer or natural person who is an associated person making the recommendation ahead of the interest of the retail customer.

The trend in court judgements in the US and Canada is not only to remind the pension trustees of their fiduciary duties but also broaden the scope of fiduciary responsibilities to all stakeholders including pension beneficiaries, both of present and future generations. This view of fiduciary duty has implications for pension design and investment decisions. Pension design must be sustainable to meet the obligations of not only current beneficiaries but also of future employees. Investment horizons should also take account of this long-term obligation and not focus on the short-term alone.

Ambachtsheer (2016) provides a check list of six question areas to consider when assessing compliance of pension trustees and in ensuring consistency with the high standards of fiduciary care:

1. *Pension Design*: Do we have a fair, sustainable, understandable pension formula? How can we best address this question? What we would do if our formula doesn't pass a reasonable

fair/sustainable/understandable test?

2. *Stakeholder Communications:* Are we clear about who our stakeholders are? Do we communicate with them effectively about pension design? About the value the pension organization is creating for them? How do we know our communication strategies are effective?
3. *Organization Design:* Do we have a cost-effective organization that produces value for risk and value for money as its key functions? How can we best address this question? What would we do if our organization doesn't benchmark well in its key functions, using credible metrics?
4. *Board Effectiveness:* How effective are we as a board? Do we have the right mix of skills and experience? Are we seen as trustworthy by our plan stakeholders? Are we public-minded? Do we measure our own effectiveness and improve our own performance?
5. *Risk Management:* What risks do we need to measure and manage? Do we have the people, protocols, and technology to do this well? If not, what are we going to do about it?
6. *Investment Beliefs and Policies:* Do we have an investment program geared to generate plan member wealth through long-horizon return compounding? Is it working well? How do we know? Do we have an investment program geared to meeting the payment obligations to retirees? Is it working well? How do we know?

Ambachtsheer (2016) also advocates collective action by pension funds that together foster long-term thinking in investment decisions that increases the social utility of finance by creating value in the real economy rather than focusing on transactions and arbitrage opportunities as the primary value driver that sustain pension benefits. This will also ensure that the pension investment decisions are consistent with fiduciary standards of care. Evidence is now beginning to emerge that a focus on the long-term and on the real economy in investments will ensure long-term sustainability of pension plans ([Barton, Manyika & Williamson, 2017](#)).

ENABLER 2: Stakeholder Communication

In our discussion on the strongly non-contractible incomplete contracts, deliberation based on the exchange of qualitative information is the centerpiece of deliberative process driven governance. We also learned that structured information such as financial reports should not be used as 'triggers' but as 'fire alarms' in the governance process. The gathering of quality unstructured information is costly, and the information is unique or specific to every organization. The unstructured format of qualitative information is both an opportunity and a limitation. A fine balance must be struck between retaining information content, that is its unstructured and emphasizes organization specific content, and at the same time allowing for cross/intra fund comparisons and benchmarking. The utility of standalone idiosyncratic firm specific information is limited as the interpretation of such idiosyncratic information is difficult in the absence of benchmarks and standardization.

[The International Integrated Reporting Council](#) (IIRC) has sponsored the Integrated Reporting (IR) framework which seeks to balance the need for detailed organization specific information

with the important concern that for such information to be useful it should be comparable and comprehensible to outsiders. The IR is an integrated annual report, compiled primarily to explain how an organisation creates value over time, through various capitals that includes the traditional financial capital always reported on. These capitals represent stores of value that can be built up, transformed or run down over time in the production of goods or services. Their availability, quality and affordability can affect the long-term viability of an organisation's business model and its ability to create value.

The IR framework identifies six capitals, which are listed as:

- financial
- manufactured
- intellectual
- human
- social and relationship
- natural.

These six capitals are not equally relevant or applicable to all organisations. While most organisations interact with each capital to some extent, these interactions might be relatively minor, or are so indirect that they need not be discussed in the integrated annual report.

[Sentinel](#) a South African multi-employer retirement fund is an example of a pension organization that has pioneered the adoption of Integrated Reporting (IR). Sentinel considered the uses or effects of all six capitals when preparing this integrated annual report. However, given the nature of Sentinel's operations, only four of the six capitals are of enough impact to be reported on. The four capitals reported on are the **financial, intellectual, human, social and relationship capitals**, while the manufactured and natural capitals are set aside. Sentinel's exposure to these two capitals is so limited that reporting on these areas is not material. Sentinel sets out specific **key performance indicators** (KPIs) for each of the capitals for which the organization measures progress against objectives. Shortfalls against objectives may be an early indicator of potential problems to be addressed.

We will discuss IR and KPIs in greater detail in the topic on performance evaluation in the Investment Module.

ENABLER 3: Blockchains

Blockchains can also be an enabler for unstructured communication based endogenous learning in the procedural justice mode. To understand why blockchains can be basis for unstructured communication on demand we will briefly look discuss the concept of blockchains and how it can be used to facilitate and enable trust and relationships in unstructured communication. In each sector or industry blockchains is being examined and interpreted in different ways. For the developer sector it is used as highly encrypted protocols for storing data securely in a distributed

network, for people involved in the finance and business world it is used as a distributed ledger for up to date tracking of transactions, for the technology sector it is the introduction to what could be the next generation of the internet and for the rest of us it is the next step in reshaping the economy as well as society as a whole leading us to a world that is more decentralized. Blockchain is an innovative web-based form that is a mix of distributed computing and cryptography. It was because of an autonomous creator called Satoshi Nakamoto who creatively decided to combine these two elements to create a network of computers that interact to establish and maintain a secured and shared database. This new form of combined web-based computing is composed on several blockchains with recorded data in each one that has been given a unique badge called the hash. Miners who validate each transaction add them to the block and then post the finished block to other nodes, also known as users, so that a copy of the database is readily available. Since this is decentralized there is no function to verify the alterations to the database the blockchain therefore depends on a distributed consensus algorithm so that to make entries onto the blockchain all other computers must agree upon its status so that no other computer can make alterations without the approval of others. After a block is added to the blockchain, as a completed block it is now posted as a permanent record and if a new one is generated then once it is completed it is then also added as another block. These are linked together with multiple blocks hence the word chain. The blockchain was designed so that is immutable, in other words cannot be deleted or altered and if altered the change will be recorded and changed throughout other block associated with that block. This works to make the data entered tamper proof.

There are three main types of Blockchains: Public, Private and Consortium.

How a blockchain works

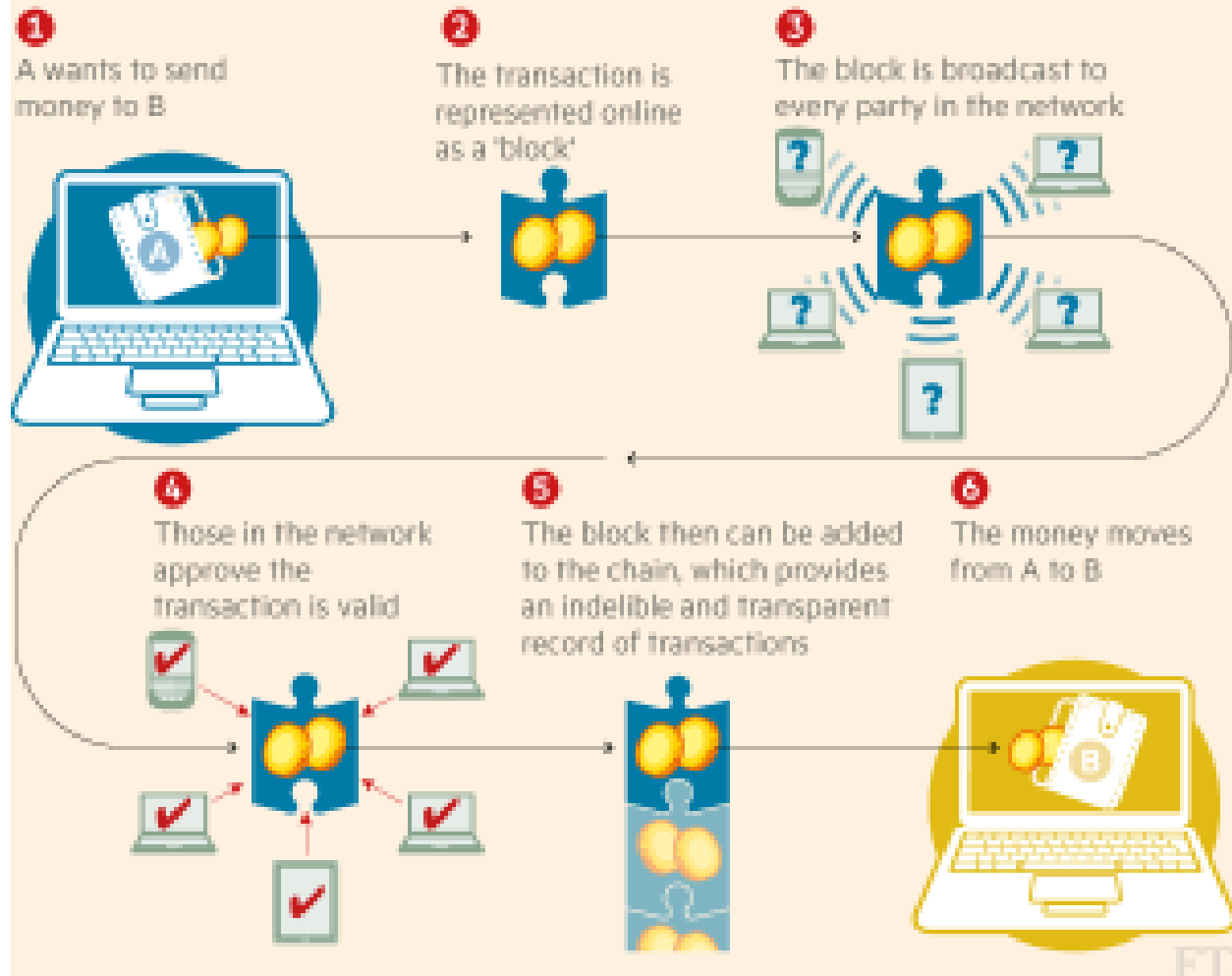


Figure 14. How a Blockchain Works ([World Economic Forum](https://www.weforum.org))

A **public blockchain** is what most people think of when they think of blockchain. It is designed to eliminate the middleman in any transaction of value. It does this by creating peer-to-peer (P2P) transactions via blocks. Each transaction is verified by each node in the system, this is what creates the immutability. Public blockchains offer full transparency of the ledger along with a degree of individual anonymity (according to the specific blockchain). It is most appropriate to use a public blockchain when an organization needs to be decentralized. On the other hand, **private blockchains** still let the middleman exist, to an extent. Private blockchains are more appropriate in a traditional business and governance model. It allows an organization to write and verify each transaction internally, allowing greater efficiency and speed. The downfall is that it doesn't offer the same decentralized security as a public chain. However, it includes most of the same beneficial features. In terms of pensions, it allows for greater transparency, and a more efficient corporate governance that works for the principals (pension holders).

A **consortium blockchain** is semi-private. It provides the same advantages as a private blockchain but is managed by a few selected nodes. For example, this consortium can be the board of directors,

top management and the adviser to the pension fund. The standard organizational structure of the pension management process discussed earlier in the first topic in this module shows that the consortium block is likely to be the most appropriate block chain for pension management. Blockchains will have a multifaceted impact on pension governance by encouraging unstructured communication. Information will be shared within the consortium with different levels of access being provided to different agents. With the reassurance that the information they are being supplied are verifiable at some level of the blockchain. This is of significance in a SNIC environment where information can be both non-observable and verifiable. The reassurance that information or unstructured communication is verifiable and immutable at specified levels will be force multiplier for the governance process.

Creating an easily accessible document and data system is an important consideration when it comes to the transparency of a pension management process. This will be dependent upon the type of blockchain used. For the sake of a pension organization we will say a permissioned/private blockchain can be used. where investment documents, performance reports, accounting data and other relevant information should be available for all pension holders and any other permissioned stakeholders. Using a permissioned blockchain, a pension fund record of transactions could be recorded permanently with a timestamp, preventing it from being altered. “The company’s entire ledger would then be visible immediately to any permitted stakeholder in a pension’s organizational structure. There will be less reliance and necessity to wait for quarterly financial statements prepared by the firm and its auditors as anyone could aggregate the pension funds transactions. Although this radical change in financial reporting would obviously come at a cost, making proprietary information available to a greater number of stakeholders would have two enormous benefits. Pension fund subscribers would have increased trust in the integrity of the company’s data, and costly auditors (who are themselves corruptible) would not need to be hired to vouch for the accuracy of the company’s books and records”

Blockchains and consortium block chains will also benefit record keeping. Record keeping using blockchain is conducted on a distributed network that is decentralized, meaning it is not controlled by a central authority. This means that records will be stored on multiple computers and these records are immutable meaning you can change them but the history of all the changes is for everyone to verify. Blockchains make it possible to share relevant records on an ongoing basis with the reassurance that at any level more data on transactions and other decisions are on record in multiple nodes and hence immutable. These can be reviewed and hence remove the fundamental constraint characteristic of SNICs – the non-observability and verifiability of information/communication. We had identified earlier in the topic on Modes of Learning, the pure procedural justice mode as best suited for principal agent relationships in a SNIC environment. This framework of learning called for the exchange of low-key unstructured communication between principals and agents and the use of structured information such as financial statement as ‘fire alarms’ and not as ‘triggers’ to reward or impose penalties on agents. The intensity of unstructured communication would be increased depending on the status of the fire alarms. Blockchains have the potential to be adopted to meet the requirements of unstructured communication and reduce the scope for opportunistic behaviour in a SNIC environment. Blockchains have the potential for addressing both opportunism as a behaviour and as an attitude in pension governance.

By promoting the feeling for the entity by generating trust blockchains will reduce opportunistic behaviour. By allowing pension subscribers greater access to pension information and facilitating pension plans to adapt with time block chains reduce the scope for opportunism by providing superior prior conditioning.

Blockchain can assist in the preparing and managing plan documents. During plan document preparation, blockchain can help in the review process by tracking and time-stamping the document review by each reviewer and ensuring execution against the most recent versions of documents. It will also enable counterparties to easily verify the authenticity of those documents. The final document can be signed digitally by all signing parties. Access to specific documents or data can be controlled within blockchain. These documents can be stored securely and economically in blockchain (Mehta, Venkatesan, Kapoor & Shetty, 2016). The cost of sharing this information within the pension management hierarchy will also be reduced significantly. With the high speeds and lower transaction costs, using blockchain can significantly decrease the operational costs that current pensions incur. This can help improve the overall bottom line of the pension company that provides higher returns for pensions holders or allow for further reinvestment back into their current system to maximize effectiveness.

Blockchains will also contribute to superior unstructured communication by promoting transparency; control and education of plan providers and subscribers.

Transparency

Blockchain can provide the most transparency possible to allow stakeholders a more comprehensive understanding of how their money is being managed by integrating better governance mechanisms. Other transparency issues that can be eliminated through blockchain are poor performance practices, hidden fees, fraudulent activities and keeping documents and data available for all stakeholders. "When used in an open form with free entry and exit, blockchains generate an archive of transactions known as a distributed ledger, because a copy of each block of transactions is distributed or made visible to all members of the network. The original Haber and Stornetta (1991) paper, in which the blockchain structure was proposed for authenticating intellectual property, suggested this structure to crowdsource the function of auditing and verification. For a pension fund, all trustees and other interested parties would be able to view the arrangement of ownership at any time and identify changes instantly as they occurred. In a private or permissioned blockchain, where the visibility of transactions could be restricted to stakeholders such as trustees and others acting on behalf of the principal, or trusted gatekeepers and investors would enjoy more anonymity. Even under the private or permissioned blockchain models, the real-time archive of transactions would create much more current and complete information about each pension fund and it would be visible to at least some observers" (Yermack, 2017).

This transparency along with the accountability it brings would have a significant impact on the pension management process. Depending on the type of blockchain used it would allow stakeholders of that chain or potentially outsiders (if using a public chain) to observe live trading by managers. A blockchain system would illuminate fund managers' ownership positions. This visibility could strengthen relative performance evaluation systems. Blockchains coupled with

acknowledgement of fiduciary responsibility will also encourage and incentivise trustees and principals to invest in acquiring information about the fund managers transactions and the decisions of multiple.

Control and Education

Blockchains will also have impact on private pension contributions and pension decisions impacted by bounded rationality. Most people are either obligated to contribute to a pension or think that it is the only way to save for retirement, but they don't treat it as they would any other investment. Education should be a crucial aspect of all pensions, although it is most often overlooked. As noted in the report 'What Canadians Want from Pensions' (Baldwin, 2017), there are significant shortfalls, in education between different age groups and income levels. Nearly half of all respondents have no plan. Two out of five have no idea how much they must save and less than one in eight have an accurate idea of how much they must save.

Transparency, control and education will contribute positively to both the feeling of entity and prior conditioning. If intermediaries are not judged solely by quarterly reports the feeling for the entity, the pension plan will improve as they will feel more fairly assessed for their performance. The principals will also be in a better position to assess the process and quality of the decisions taken by the intermediaries instead of focusing on the outcome that is quarterly reports of performance alone. better education will also lead to a more informed basis for expectation formation by plan subscribers and plan providers. This will contribute positively to prior conditioning and hence reduce the scope for opportunism in the interactions between plan subscribers and plan service providers.

The literature on corporate governance has identified serious neglect in the exercise of voting rights by fund managers in the companies they have significant pension assets invested. Disproportionately, pension fund managers vote in favour of the top management without any evidence of exercise of due diligence in the exercise of the votes. A feature that can be implemented because of blockchain is the ability to record proxy votes. "If proxy voting is conducted on blockchain, participants can vote electronically, and blockchain will provide end-to-end audit ability. Blockchain would also be used to record all the votes for a fraction of the cost. Like current online proxy voting, each participant can be sent a control number that allows the participant to vote electronically. As a result, voting records are more private and secure than if they are kept in a central database. This not only puts more control back into the hands of the pension holder by creating a more sensible corporate governance working for the principal (the pension holder), it incentivizes people to be more interested in the pension investments therefore furthering education and involvement of pension subscribers or principals (OECD, 2017). The exercise of voting rights will also have a positive impact on both the feeling for entity and prior conditioning and thus reduce the scope for opportunistic behaviour.

Labour Market Changes

Block chains will also make pension plans more responsive to labour market changes. The portability of pension plans will also be enhanced by blockchains and this will have design implications for pension plans. Blockchain's ability to 'link' financial transactions together could also be a valuable mechanism for recording an individual's pension savings. Instead of having a new pension every time there is a job change, the record of a pension plans, and the contributions paid in may be added to my one blockchain, despite the different employers throughout my working life paying to my pension

This is especially relevant today as it is less likely that a plan subscriber will have d continuous life-long employment anymore. Most will l often cycle through many jobs or freelance before they are even thirty. This is not necessarily a bad thing, but we do need the right pension technological infrastructure to support savings for retirement.

By creating a financial passport via blockchain each person would be able to have his/her own individual chain, that a pension company can maintain for the time of their employment. "Our prototype allows tokens on a chain to be moved to other chains. This allows someone, when they switch employer/pension company, to move their accumulated pension to a new fund Also, if you allow tokens on a chain to be moved to another, it allows someone to inherit a pension if their spouse passes away or if a kid becomes an orphan (both chains get combined because the tokens although on different chains, have the same value). And we keep the other chain's meta history as all data in the layer is permanent and immutable, It also allows a pension fund to be absorbed by other funds. If the fund is transferred, they can move all the pensions in the blockchain to a new holder. And if the new company doesn't want to do blockchain, they simply move their chains to non-existent chains to show the sale for audit reasons".

Examples

Examples of Pensions looking to adopt blockchain

1. OMERS (Ontario Municipal Employees Retirement System)

"Ontario pension giant OMERS is pushing further into the rapidly expanding cryptocurrency business through the creation of an Ethereum-focused public company that is planning to raise \$50-million.

The company it is backing will be called Ethereum Capital, and is being partly financed by Purpose Investments, a fund management firm led by industry veteran Som Seif and partially owned by OMERS. Mr. Seif will be chairman and co-chief investment officer of Ethereum Capital, which is aiming to raise \$50-million from investors and become a public company through a reverse takeover of a TSX Venture shell company."

Higgins, Stan. California Pension Fund Considers Blockchain Opportunities. CoinDesk. [Online] 2016. <https://www.coindesk.com/california-pension-fund-considers-blockchain-opportunities/>.

2. CalPERS (California Public Employees' Retirement System)

“Board members of the California Public Employees’ Retirement System (CalPERS) recently took part in a discussion on blockchain technology as part of a broader conversation about future investment opportunities.

The meeting is notable given the size of CalPERS, which manages just over \$300bn in assets, making it the largest public pension fund of its kind in the US.

In 2009, the pension fund invested \$200m in Kholsa Ventures, a Silicon Valley-based venture capital fund, and gave an additional \$60m to a seed stage-focused fund run by Kholsa. Just over two years ago, Kholsa led a funding round for blockchain startup Chain, and the fund has also invested in Blockstream, 21 Inc and BlockScore.

Other public pension funds outside of the US have explored investments in the space. Earlier this year, the venture arm of the Ontario Municipal Employees Retirement System (OMERS) took part in a funding round for VC firm Digital Currency Group.”

Exercises

CONCEPTS FOR REVIEW

1. Fiduciary Care and Fiduciary Responsibility
2. Suitability Standard
3. Modes of Learning
4. Stakeholder Communication
5. The Integrated Information Reporting Framework
6. Block Chains

Exercises

SAMPLE REVIEW QUESTIONS

1. Given the strongly non-contractible incomplete contracts is the Fiduciary Standard or the Suitability Standard, is more appropriate to resolve the agency problem between principals and agents? Discuss.
2. What is stakeholder communication? How does it address the governance challenge in pension management?
3. Sentinel a South African pension fund used the integrated information reporting framework to promote stakeholder communication. Evaluate its experience in resolving the governance challenge in pension management.
4. What are block chains? How can block chains be used to promote transparency and superior governance of pensions?

MODULE 3 INVESTMENTS

TOPIC 1: PENSION INVESTMENTS: AN OVERVIEW

Rajeeva Sinha

**TOPIC 2: THE INVESTMENT
POLICY STATEMENT**

**TOPIC 3: PERFORMANCE
EVALUATION**

TOPIC 4: LONG TERM INVESTMENTS

TOPIC 5: DEACCUMULATION

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