National Pension Hub:
Research Agenda

The National Pension Hub is looking to support research that addresses at least one of the following topics:

1. **Plan Design and Plan Adequacy:**

   The boomer generation has just entered retirement. Population aging paired with a prolonged low interest rate environment has put the sustainability of pension arrangements in many Western countries under pressure. Moreover, future demographic changes may have a significant impact on capital markets, labor markets and long-term economic growth. Consequently, sustainable pension plan design that maintains pension income adequacy and meets comfortable retirement income targets is top of mind for the NPH.

   The ambition of this theme is to conduct academic research to help better understand the risk factors that drive uncertainties around future pension plan adequacy. This theme aims to provide more detailed and scientific insight on income adequacy both before and during retirement. This will require more adequate modelling of the uncertainties surrounding life expectancy, financial markets, policy changes and the response of individuals and institutions to each. Given the breadth of this topic, there are numerous possible avenues for research which include, but are not limited to:

   Effects of demographic change on individual consumption and saving behavior
   As lifespans lengthen in the decades to come, populations will age and retirement will last longer. The NPH seeks to better understand future demographic changes and how these changes will affect individuals' saving and consumption patterns. Research on this theme could analyse issues like how individuals deal with uncertainty about future survival probabilities, the impact of aging on household investment portfolios, the effects of increased longevity on retirees' health care needs and the implications for government budgets, and labor market outcomes for older age groups. Moreover, the NPH is interested in projects that address the potential impact of these findings on the pension industry.

   Effects of demographic change on financial markets and macroeconomic outcomes
   How will demographic changes—and the impact of these changes on individuals' decisions—affect broader financial markets and macroeconomic dynamics? The NPH seeks to understand the implications of demographic changes for asset prices and interest rates, aggregate demand for healthcare and social services, income inequality, as well as other macroeconomic outcomes. Again, the NPH is interested in projects that explore the implications of these findings on pension plan finances, and investment and design decisions.

   Sustainable pension design
   Increased longevity, falling labor force participation, and pension-related policy reforms pose unique challenges for the sustainability of pension funds. The NPH seeks to understand how Canadian pension funds should respond to these challenges. Research on this theme could address inter- and intra- generational redistribution, optimal risk pooling and risk sharing, innovations in pension design like contingent claims and decumulation products, and the impact of various policy reforms on pension sustainability.

2. **Private Market Risk Assessment:**

   Investments in privately-traded assets like private equity, real estate, and infrastructure, and private debt have grown tremendously in recent decades. Despite this growth, little is known about the risks and returns of these investments, the costs and benefits of holding them in a diversified portfolio, and whether they introduce moral hazard or agency issues. The NPH is seeks proposals for funded research that fills these gaps. Data on NPH members' holdings of private market assets may be available for some topics.

Possible topics include, but are not limited to:

Measurement of private market asset risks and returns
Measurement of assets' risks and returns forms the heart of financial economics in theory and in practice. Without market prices to go by, however, measuring the performance of private market assets is a challenging endeavor. Estimates of private market returns, which are typically based on cash flows alone, are mixed; industry-reported returns on private market assets are often substantially higher than public market returns, but many academic studies find that private market assets perform only slightly better than—and sometimes worse than—the market. Moreover, standard cash-flow-based methods like internal rate of return (IRR) and total value paid in capital (TVPI) provide little information about risk, which is of particular interest to the NPH. The NPH seeks research that that develops new methodologies for estimating the risks and returns of private market assets.

Asset allocation with private market assets
Private market assets' illiquidity poses unique risks for pensions and other asset managers, but they may also provide diversification benefits. How should one construct diversified portfolios that include both publicly and privately-traded assets? How should such portfolios be rebalanced, given that changing holdings of private market assets often entails large transaction costs? The NPH seeks research that develops new methodologies for constructing and rebalancing optimal portfolios that include both publicly and privately-traded assets.

Agency problems
Moral hazard and other agency problems play central roles in modern corporate finance. Pensions and other asset managers that hold private market assets typically delegate the management of these investments. How should management contracts for these investments be structured to maximize performance without incentivizing managers to take undue risks? The NPH seeks research on optimal contracting in the management of private market assets.

3. **Impact and Use of Leverage:**

    Pension funds are increasingly employing leverage within their portfolios. In Canada, for one, the nation's six biggest pension funds saw an increase in average leverage from 19% in 2009 to 24% in 2017. Common sources of leverage include the use of derivative-based investment strategies, and fixed-income investments financed through the repo market, while less common examples include the use of synthetic equity or synthetic credit strategies.

    Leverage-based investment strategies, when utilised correctly, can improve pension funds' asset liability management by reducing asset-liability mismatches (hedging) or improving the risk/return trade off. At the same time, however, these strategies can increase pension funds' exposure to macroeconomic shocks and consequent fluctuations in available market liquidity.

    The NPH is interested in supporting research that investigates the use of leverage across pension plans globally, the role of leverage and how it impacts portfolio construction and risk taking, and whether there is an 'optimal' leverage ratio.

4. **Portfolio Construction:**

    Pension fund managers face unique challenges in constructing their portfolios and managing their risk due to the long-term nature of their liabilities and heterogeneity of their beneficiaries. The NPH seeks proposals for research that addresses these challenges. There is a broad range of potential topics under this theme including:

Enhancements to pension portfolio construction

The NPH seeks research that pushes the frontier of knowledge on pension portfolio construction. Research on this topic could address the use of dynamic vs long term asset allocation; long-term factor-based investing, and the risk and return characteristics and optimal asset allocation decisions for alternative investments including private equity, infrastructure, real-estate, and commodities.

Risk-appetite and asset allocation

Pension fund managers face unique challenges in risk management as well as asset allocation. The NPH seeks research that focuses on best practices for setting risk-tolerances and how to optimally incorporate this into asset allocation decisions. Research on this topic could address questions such as: How should a pension plan's asset allocation and risk tolerance change over the plan's life cycle? How should pension fund managers adjust their asset allocations in response to changes in the health of their balance sheets? How should pension risk-appetite frameworks balance between investment risk, contributions and benefits?

In addition to these four main research topics, research focused on the **governance of pension organizations** and the **impact of governance on plan performance** may also be of interest to the NPH.