

**PLACING THE PRODUCTION OF INVESTMENT
RETURNS: AN ECONOMIC GEOGRAPHY OF ASSET
MANAGEMENT IN PUBLIC PENSION PLANS**

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ABSTRACT. Traditionally, asset owners such as pension funds and sovereign wealth funds have relied almost exclusively on financial intermediaries to invest their assets. However, since the 2008 financial crisis the idea of bypassing the industry by insourcing investment functions has gained momentum amongst practitioners and academics alike. Dixon and Monk first reviewed this grassroots movement in a publication titled “frontier finance” (2014). Their global survey revealed mixed empirical results suggesting that while the model had generated a marked interest, it had failed to be widely implemented. Since the organisations they investigated were most often found outside established financial agglomerations, their results pointed to the enduring dominance of international financial centres (IFCs) in the provision of investment return production. This doctoral thesis proposes to reevaluate their conceptual proposition in the context of state and local pension plans in the United States.

By unveiling and critically assessing the provision of investment services amongst public pension funds, this thesis contributes to scholarship on the necessary foundations to safeguard the procurement of decent retirement income in the future. To meet its objective, the thesis proceeds inductively using mixed-methods including original quantitative and qualitative data. These include an econometric analysis of a unique panel dataset on 21 state pension plans and semi-structured interviews with 37 investment professionals employed by a large frontier pension plan. Triangulated with additional close-dialogue and secondary data analysis, these insights are ultimately assembled into a comprehensive theory of insourcing for public pension funds. The findings contribute to economic and financial geography scholarship on institutional investors and global financial market investments. In light of the empirical findings, it is argued that the production of institutional investment returns is underpinned by two concomitant and seemingly contradictory processes: the increasing agglomeration of financial institutions around IFCs and the unprecedented virtualisation of their tasks and functions.

The argument is sustained in reference to the different combination of technological and human capital required to manage distinct type of financial market investments. On one hand the thesis shows the declining relevance of co-locating decision-making with financial agglomerations to produce investment returns on public markets covering proximate economies (domestic and developed). As these markets have become increasingly virtualised, liquid and efficient, they require less intensive and specialised investment processes thus lending themselves well to investment at-a-distance. Since public markets remain the backbone of asset owners' portfolios, it is suggested that insourcing holds an untapped potential. On the other hand, the thesis emphasises the enduring relevance of specialised clusters providing tasks and functions that make intensive use of human capital and non-commodified information. As such, private market investments and more generally investments that call upon highly specialised decision-making remain territorially contained and thus less well suited to investment-at-a-distance. Notwithstanding marginal limits, the thesis demonstrates that Dixon and Monk's (2014) frontier finance, and in a larger sense O'Brien's (1992) thesis on the “end of geography”, are increasingly legitimate theoretical concepts to describe asset owners' production of investment returns.

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1. INTRODUCTION

Institutional investors claim an ever-growing share of global financial market activity. Between 2000 and 2011 the total assets managed by pension funds, insurance companies and investment funds in OECD countries have grown from 36 to 73.4 trillion (tn) USD (Çelik and Isaksson, 2014). Amongst them, a community of asset owners whose investment functions have traditionally been almost entirely outsourced to external managers have started to consider insourcing to regain direct control over their assets and reduce their investment expenses. First seriously investigated by Dixon and Monk (2014), this grassroots movement led by pension funds, sovereign wealth funds (SWF) and other beneficiary institutions has important economic and geographical ramifications. Firstly, since many of these financial institutions owe their existence and physical locations to mandates emanating from local public administrations, they tend to be geographically dispersed and often found outside of major agglomerations of financial activity. Secondly, with the territorial expansion of contemporary financial markets and the diversification needs inherent to the size of these institutions, they are increasingly investing in “spatially extensive financial markets” (Clark and Monk, 2015).

This community of institutions coined “frontier investors” by Dixon and Monk (2014) face the atypical challenge of operating at the margin of financial centres, from small and distant local economies towards global financial markets. Given the rapid expansion of virtual financial networks in the 1990’s, which included the wide-implementation of electronic trading platforms and the development of commodified financial information, early commentators speculated on a forthcoming “end of

geography” (O’Brien, 1992b; O’Hara, 1995). Not to be understood as a world of inconsequent geographies per se, the prognosis expected this new virtual era to blur and recast the boundaries of traditional circuits of capital. Characterised by technological advancements, deregulation, financial crises and political instability, the last twenty-five years have indeed seen important transformations in the financial industry. Leading to the first downturn in global output since 1946, the global financial crisis of 2008-09 (GFC) has shown the unprecedented intricacy and pervasiveness of contemporary finance. Although the GFC largely originated from New-York and London, the spatial extensiveness of financial markets has spread its effects globally. While finance is indeed forever more global, it is shaped and orchestrated by a handful “capitals of capital” (Cassis, 2006). Indeed, notwithstanding the emergence of a handful of financial centres in the Asia-Pacific region, power concentration amongst a few cities has markedly increased over the last decades.

In this new order of global finance, geographical space has arguably become increasingly significant to financial institutions. Organised into a tight network of urban centres, contemporary finance is agglomerated in unprecedented ways as financial firms place a significant premium on co-locating their activities in strategic nodes. While a handful of international financial centres (IFCs) exert global dominance, cities have developed complementarily per local specialities forming a global production network. New York and London have established their hegemony in channelling domestic flows of capital to the outside world, Singapore and Hong-Kong lead foreign lending and trading of international currencies and the Bahamas and the Cayman Islands provide key repository spaces of offshore capital. Given the complementarity and the spatial extensiveness of this global production network,

local asset owners have traditionally preferred to piggy-back on the industry to invest their assets. By delegating their investment functions, dislocated institutions could enter the network from home and let the asset management industry leverage its size and expanded territorial reach to meet global investment return production objectives.

However, this practice of delegation has been met with intensifying criticism. Over the last two decades, scholars and practitioners alike have put increasing pressure on the financial industry to better align its interests with its clients. Early accounts such as Lakonishok, Shleifer and Vishny (1992) decried the high-costs of asset management services questioning the ability of investment managers to consistently to add value to their clients' investments. Criticism peaked in the aftermaths the GFC. As the financial sector was directly blamed for the market and economic downturn that nearly caused the failure of capitalism, the debate reached the public at large and was met with a general questioning of the social costs and benefits of high-powered financial institutions. Almost 10 years have now passed. While significant regulatory efforts have been placed on improving risk-management and decreasing the costs of financial services, the industry has nonetheless well recovered and stands no-diminished from its mishap.

Whereas major banks deemed too-big-to-fail were bailed-out by governments, several financial institutions that did not represent systemic risks went bankrupt while others experienced a rather difficult recovery process. For public pension funds in the United States, the direct and indirect costs of their entanglement with the financial industry was rather spectacular. Under current assumptions unfunded liabilities of state and

local pension plans amounted to 1.52tn USD in 2016. The shortfall has been shown to reflect a combination of the market downturns of 2001 internet bubble (.com) and 2008 (GFC), the high-costs of outsourcing, as well as the sustained under-contributions on the part of public pensions' sponsors (see MacIntosh and Scheibelhut, 2012; and Hooke and Walters, 2013 on fees and outsourcing; see Munnell, Aubry and Cafarelli, 2015 on investment returns and contributions). As traditionally outsourced institutions, public pension funds have consistently, regardless of market circumstances, payed high fees on external management. Assuming 60 percent of the assets managed by public plans, amounting 3.96tn USD in 2017, were outsourced at an average 0.4 percent yearly fee, the total costs of outsourcing for 2017 would amount to 9.5 billion (bn) USD.

In a context of looming national pension crisis which may see the failure of these institutions in an absolute sense and may, in their wake, precipitate the default of state governments on their liabilities, there is a pressing need to improve the cost effectiveness of these institutions. At stake is the welfare of 31.2 million members. Insourcing has a significant role to play in this endeavour. However, managing large pools of retirement assets autonomously and "at-a-distance" (Clark and Monk, 2013) away from major clusters of finance is not without its challenges. As shown by Dixon and Monk (2014), whereas functioning autonomously at the margin of finance is on institutional investors' agendas it has so far failed to be widely implemented. Quoting from their study: "there is an insufficient critical mass of organizations at this stage successfully implementing change such that the conventional functional and spatial structure of asset management faces an existential threat and that the dominance of IFCs in the allocation of global flows of capital is in doubt".

Looking closely at insourcing amongst state and local pension plans in the United States, this doctoral thesis proposes an in-depth revaluation and test of Dixon and Monk's (2014) "frontier finance" proposition. Through the lens of economic geography, the thesis delves into the foundations for a reasonable retirement income in the future. As such, it casts on a social issue of fundamental importance. Looking at the modes of provision of investment services of public pension funds, it constructs an empirically grounded narrative advocating for institutional empowerment at the margin of corporate circuits of capital. Exploring the viability of insourcing as an investment management model amongst distant public sector investment funds, the thesis brings together geographically grounded political and economic analysis. The insights produced here reflect critically upon the dismantling of public institutions through privatisation and the increasing globalisation and agglomeration of contemporary finance. Digging concomitantly into these issues, the thesis proposes an economic geography of asset management in public pension plans.

To meet its objective, it proceeds empirically using quantitative and qualitative methods to inductively produce theory. Starting with a description of the institutional arrangements of state and local plans it then provides a spatial and longitudinal analysis of their insourcing strategies. In a second part, it looks more closely at the challenge of attracting and retaining investment professionals at the margin of talent clusters. Building on these empirical foundations, it concludes on proposing six conceptual dimensions of insourcing for public pension plans. By looking at local and dispersed financial institutions, this thesis gives weight to the "problem of embeddedness" (Granovetter, 1985) in the production of global investment returns. Whereas discussions pertaining to the political foundations of these institutions have

specific relevance for public pension plans in the United States, the findings relating to institutional and financial-economic dimensions are material to financial institutions in a larger sense. In particular, they emphasise ambivalences between increasingly immaterial geographies driven by the expansion of virtual investment spaces and the enduring importance of human capital, resolutely bound to contained territorial space, in the production of investment returns.

Building upon a multidisciplinary body of scholarship and original empirical analysis, the thesis argues that frontier finance, and in a larger sense the end of geography, are increasingly legitimate theoretical concepts that require specific asset class attention. Underpinning the argument are the notable differences in technological and human capital needed to carry qualitatively distinct types of financial market investments. On one hand, liquid and efficient assets, encompassing public market investments in proximate economies (domestic and more broadly developed), have become increasingly virtualised, and lend themselves well to technologically intensive investments strategies. These can be relatively easily implemented from a variety of geographical spaces. As long-term institutional investors, such as pension funds and SWFs, allocate most their capital to these markets, it is argued here that frontier finance holds a significant untapped potential. On the other hand, illiquid and inefficient assets encompassing private markets in proximate and distant economies (non-domestic and developing) that still escape widespread digitisation and remain human capital intensive are still forcefully grounded so that the location of their management is still contingent to the centripetal forces of labour markets.

In order to comprehensively develop these arguments, the thesis proceeds as follows: first, as a way of introduction, it briefly describes the methodology, and the context and flow of the four chapters that make-up the core contribution. After presenting the limits of the thesis, chapter 2 offers a general review of the scholarship that gives status to the four main chapters. As such, it focuses on the topics of insourcing, outsourcing, agglomeration economies and the geography of talent. This body of work is evaluated prospectively and critically in relation to the empirical ambitions of the research project. The core of the thesis is made of four chapters each answering a specific research question. Chapter 3 answers the question of how public pension plans distribute their capital between insourcing and outsourcing. Chapter 4 answers the question of what locally embedded institutional, economic and political variables explain the arrangements observed in chapter 3. Chapter 5 answers how an asset owner can attract and retain human capital at the margin of talent clusters for investment professionals. Finally, building upon the findings of the preceding three chapters, chapter 6 proposes six analytical building-blocks on insourcing in public pension plans.

1.1 Methodology

The thesis spans the full spectrum of methodologies allowed in the social-sciences. As a whole, the thesis is interested in elaborating a spatial analysis of the production of investment returns amongst institutional investors. To meet its objective, the thesis started organically from a critical examination of existing scholarship on the topic. It emerged that the vast majority of the empirical accounts on the topic were qualitative and inscribed in a tradition of producing social meaning through insiders' knowledge

(Herod, 1999). Existing accounts were predominantly constructed through close-dialogue with deep and established networks of investment professionals, industry experts and academics spanning a large institutional and geographical spectrum. The method allowed to develop a significant body of qualitatively empirical and inductively theoretical scholarship in economic geography on the production of investment returns amongst institutional investors (see most notably Clark and Urwin, 2008, 2017; Dixon, 2012; Dixon and Monk, 2014; Clark and Monk, 2017).

Notwithstanding the substantive contributions of this body of work, I noted the underrepresentation of quantitative methods in studies on institutional investors in economic geography. In particular, whereas the topics of in- and outsourcing have received significant empirical attention from scholars, there were no studies to substantiate, cross-validate and elaborate on a number claims and inferences. This absence naturally drew me to put this existing body of theoretical and empirical work to the test of positive science. Following a deductive approach at first, I chose to focus this endeavour on state and local pension plans in the United States. Three main reasons motivated the choice of this particular group of institutions: 1) There are a comparatively large number of these institutions that offer rich, transparent and reliable data on their arrangements and performance, 2) their geographical landscape is characteristic of the frontier finance thesis; indeed, the U.S. territory regroups scattered public pension plans and major financial agglomerations and 3) the organisational field is consistent enough to make meaningful inter-institutional comparisons and allows for wide-ranging quantitative analysis.

The lack of comprehensive dataset regrouping publically available resources may explain the shortage of quantitative studies on the topic. Data availability and access were crucial to meet the ambitions of the thesis. The Pension & Investment Data Centre provided a pivotal support by granting access to their proprietary dataset on state and local plans. The dataset included the assets managed in-house by individual plans at the end of each fiscal year with first observations starting in 2006. This constituted the core variable used to evaluate in- and outsourcing amongst public pension plans. The dataset was consolidated and augmented with data from The Centre for Retirement Research at Boston College (CRRBC), plans' Comprehensive Annual Financial Reports (CAFRs), statistics from the U.S. Bureau of Economic Analysis (BEA), the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS). Combining these different sources allowed to constitute a unique database on state and local pension plans suited for spatial and longitudinal economic analysis.

Using part of the database, chapter 3 addresses the absence of empirical evidences on public pension plans' use of in- and outsourcing to manage their assets. To do so, the chapter looks specifically at the proportion of assets managed in-house by a sample of 31 state and local plans over the period 2006 to 2012. The descriptive statistics allow to draw observations and commentary on state and local plans' investment management models through time and across geographical and organisational characteristics. Whereas chapter 3 answers the question of *how* plans are organised to invest their assets, chapter 4 aims at answering *why* they ascribe to particular arrangements.

Using econometrics, chapter 4's findings are derived from a random effects model on panel data. The sample covers 21 state plans over 7 years (2006 to 2012). The quantitative analysis leverages the full potential of the database testing a variety of economic and financial variables. The final model includes 13 explanatory variables. The dependant variable is defined as the proportion of assets managed by plan i in period t . The results of the regression analysis identify coefficients, levels of significance and confidence intervals for each variable allowing to quantify what matters to public pension plans in determining their investment sourcing strategy. The strict quantitative approach of chapter 3 and 4 allows to elaborate, refine and at times dispute the frontier finance thesis in the context of state and local pension plans. Methodologically, the chapter is hoped to bridge a persisting divide between economic geographers and quantitative methods (see Overman, 2004 for a discussion on tribal methodological disagreements between geographical economists and economic geographers).

Chapter 5 marks a transition from quantitative to qualitative analysis. Using mixed-methods including close-dialogue and secondary data it looks empirically at the issue of attracting and retaining human capital under budgetary and geographical constraints. To do so, the chapter focuses on a case study of a large state sponsored pension plan. The plan is selected for its qualitative characteristics as a representative frontier finance institution. As such, the plan manages half of its assets in-house from a medium-size city located afar from financial providers and faces strong political pressures to keep its operational costs a minimum. Access was made possible with the help of Professor Gordon Clark who established prior contact with the organisation. In a sense, this chapter reverts to the insider approach privileged in prior accounts on

institutional investors in economic geography. Rooted in a tradition of qualitative research in the social sciences, it aims at providing “thick descriptions” (Geertz, 1973) of *frontier talents’* lived experiences and motives in choosing their places of work. While by no means it claims to stand as an anthropological endeavour, it embraces the desire to richly contextualise observed social action and meanings. This device has been used extensively to research the financial industry in economic geography (see for instance McDowell, 1998; Cook *et al.*, 2007; Hall and Appleyard, 2009).

“Thick description accurately describes observed social actions and assigns purpose and intentionality to these actions, by way of the researcher’s understanding and clear description of the context under which the social actions took place. Thick description leads to thick interpretation, which in turns leads to thick meaning of the research findings for the researchers and participants themselves, and for the report’s intended readership. Thick meaning of findings leads readers to a sense of verisimilitude, wherein they can cognitively and emotively “place” themselves within the research context” (Ponterotto, 2006).

The case-study analysis is derived from 37 semi-structured interviews conducted on site in the United States over the months of March and April 2016. Following general ethical guidelines in social sciences, the name of the participants, the name of the institution as well as details potentially leading to their identification were kept confidential (Clark, 1998). First and foremost, anonymity protects the interests of the participants by insuring the research has no material effect on their lives. Secondly, clearly stated anonymity guidelines help increase the participation as well as the openness of the respondents. The findings are cross-validated using a triangulation approach based on secondary quantitative data as well as existing literature on the topic. Since the ambitions driving the elaboration of this chapter are largely a product of the gradual discoveries made through chapter 3 and 4, the qualitative data gathered here serve not only to answer an original research question but also provide a way to

retrospectively evaluate and cross-validate the results of the first two quantitative chapters. “Qualitative data and analysis function as the glue that cements the interpretation of multi-method results” (Jick, 1979).

Chapter 6 revisits comprehensively the first three chapters of the thesis in order to develop six conceptual dimensions of insourcing for public pension plans. It follows an inductive approach that builds upon the primary quantitative and qualitative data collected throughout the research project. Each dimension is discussed individually as well in relation to one another when deemed appropriate. Theory is, as often as possible, sustained by examples as well as additional secondary data. Overall, the present thesis flows from breadth to depth of analysis. From large scale quantitative descriptions and statistical analysis to small scale qualitative thick descriptions, it culminates with an inductive theory that binds the empirical discoveries into a comprehensive framework.

1.2 Chapter contents

Chapter 3

This research project started in the fall of 2013. At that time, albeit enduring market volatility and economic uncertainty, global financial markets had almost recovered the losses incurred between October 2007 and March 2009. The landscape of financial market institutions however had gone through significant remodelling as the historical market downturn had left its marks on several household names. Bear Sterns, Fannie Mae, Freddie Mac, Lehman Brothers and AIG topped a long list of

financial institutions that went bust following the burst of the credit bubble. Amidst fears of systemic risks, many private sector financial institutions deemed too-big-to-fail were saved by state governments through unprecedented influx of public capital. Some got liquidated and other were bought by rival institutions in a process that effectively shrank the competitive landscape and increased financial power concentration amongst a select few. Overall, worldwide write-downs by financial institutions totalled 2tn USD. These losses were largely offset by government led capital infusion worth 1.6tn USD (Adelson, 2013).

While the sell-side of the industry suffered from the GFC, it received a level of financial support from governments the buy-side was not granted. State and local pension plans were amongst buy-side institutions that suffered significant losses from the market crash. According to Munnell, Aubry and Quinby (2011), the GFC has cost over 1tn USD to state and local pensions, leading to unprecedented underfunding levels. Close to 100 percent in the early 2000's, funding levels declined to an estimated 73 percent in 2012 (Munnell *et al.*, 2013). According to the U.S. Census Bureau, in 2016 state and local pension plans collectively managed 3.86tn USD on the behalf of over 31.2 million members¹. Concomitant to these assets are deep social, economic and political issues.

State pension plans are hardly conventional investment firms. They feature organizational, geo-economic and political singularities that underpin their

¹ This figure comprises 14.7mn active participants 10.3mn beneficiaries and 6.2mn of other members including inactive vested and inactive non-vested participants.

organisational arrangements and performance. In general, these singularities make each public pension plan somewhat unique relative to peers and akin financial institutions such as sovereign wealth funds (SWF), endowment funds and private sector pension funds. Most importantly, in contrast with private pensions, public pension systems in the United States are not subject to federal regulation. Reflecting a “bygone era of U.S. federalism” (Clark and Monk, 2014), state government employees’ pensions’ assets collection, management and distribution is the responsibility of individual states.

There is therefore a high degree of localism in the way public pensions are governed and they can be “held hostage” to the political interests of their sponsors (Clark and Monk, 2017). A prime example was that of Illinois whose assembly voted a Bill in December 2013 to override constitutional protection and alter its pension promises in order to redress its precarious public finances. The Bill was ultimately overturned by the Supreme Court. The ruling stated: “The General Assembly may find itself in crisis, but it is a crisis which other public pension systems managed to avoid and (...) it is a crisis for which the General Assembly itself is largely responsible” (The Supreme Court of Illinois, 2015).

The implications of the statement should not be understated: while the underfunding of public pension systems may have nationwide socio-economic implications, it is a spatially uneven crisis rooted in distinct local political and economic contexts. Looking at the 10 largest state pension plans in 2016, the differences are striking. For instance, while New York State Teachers based in Albany had 99bn USD of assets accounting for 94 percent of its projected liabilities, California State Teachers based in

West Sacramento had 170bn USD of assets accounting for only 64 percent of its projected liabilities. As creatures of state and local governments, public pension plans face varied challenges which are context specific.

Notwithstanding the variegated nature of the public pension crisis in the United States, it is fair to assert that overall and since the GFC, funding government employees pension systems has not been a top-priority of elected officials. One might note a degree of irony here. Not only these public institutions were not granted explicit financial support following their significant investment losses, they were effectively further weakened by decreases in contributions in an attempt to juggle the fall in tax revenues as a consequence of the economic slowdown following the GFC.

This public-private sector double standard in the rescue of financial institutions reflects a larger process of attrition of an old-age paternalist pension systems of Defined Benefits (DB) to which an increasing number of employers prefer less committed and individualistic Defined Contribution (DC) systems (Dixon, 2012). Under DB systems, which remains the prevailing system of retirement for public sector workers in the United States, future liabilities are known in advance and matched through a combination of contributions and financial market returns. As state legislators struggled with increased deficit levels after two financial crises (.com and GFC) they made the active decision to under-contribute and place a premium on investment return expectations (Andonov, Bauer and Cremers, 2015; Munnell, Aubry and Cafarelli, 2015). This had the effect of increasing plans' appetite for high-rewards, complex investment solutions. As a result, plans' investment expenses increased significantly. Amidst economic uncertainty and market volatility, these expenses were

not matched by out-performance and incurred further net losses (Hooke and Walters, 2013) along-side with increased portfolio risks (Andonov, Bauer and Cremers, 2015). A perfect storm for financial market investors.

Amidst these difficult times for asset owners, MacIntosh and Scheibelhut (2012) looked into the benefits of insourcing investment management for a sample of 19 pension plans located across the globe. The study found strong evidences of cost savings for plans investing in themselves rather than spending their money on external contractors. Another study further showed that state pension plans paying the highest average fees to external providers were also consistently under-performing their peers after costs (Hooke and Walters, 2013). These results provided evidences of the growing misalignment between asset owners and asset managers' interests.

In light of these dysfunctions, Dixon and Monk (2014) proposed to look at how asset owners have started to consider retaking control and responsibility for their investment returns by insourcing their investment functions. In their study titled frontier finance, the authors looked at how institutional investors such as pension plans and SWF based in remote local markets have started parting with the industry by bringing their assets back inside their walls. While their study offered selected evidences of large U.S. state plans taking such dispositions (25bn USD of asset under management and above), a comprehensive picture of how state and local plans are effectively organised to manage their assets was still missing at this point. This empirical gap, the growing evidences on the potential of insourcing to address a looming pension crisis and an intellectual curiosity to dig deeper into the frontier

finance thesis is what inspired this chapter and, in a larger way, the body of research presented in this thesis.

Chapter 3 asks how geographically dispersed state and local plans are organised to manage their financial capital. Before addressing the question through empirical research, the chapter proposes to define public pension plans as a distinct organisational field with particular geographical characteristics. This is done to contrast the empirical findings with expectations of organisational arrangements under classical theories of the firm. The research is interested in revealing the asset management practices of public pension plans as well as how these practices have evolved across space and through time. It emphasises organisational change from a relational perspective. The chosen unit of analysis is the relation between state and local plans and the financial industry.

To anchor this notion in a quantifiable metric, the empirical analysis relies on the percentage of total assets managed in-house by a sample of state and local plans. This original metric is part of the dataset provided by Pension & Investments Research Centre. It is used to assess quantitatively Dixon and Monk's frontier finance thesis in the context of U.S. public pension asset management. Expanding on the authors' idea, the analysis is framed by the concept of rescaling and split into two parts: the first assesses institutional rescaling and the second assesses geographical rescaling. The former is understood as the reallocation of resources away from private sector hands and towards public sector institutions while the latter is understood as a spatial redistribution of pension plans' assets away from IFCs towards smaller scattered local economies.

The empirical exploration of the organisational field lays the foundations for the rest of the thesis by answering a broad question: how and where are public pensions' assets managed? The analysis reveals five key findings that carry relevance both for economic geography and pension economics. Firstly, the study confirms that plans resort primarily to outsourcing with half the plans delegating over 65 percent of their assets to external providers. Secondly, the results give weight to the theory of path-dependency as most plans showed poor adaptiveness to the unprecedented changes observed across financial markets and the financial industry following the GFC. Thirdly, the results indicate an ongoing institutional and geographical rescaling; however, contrary to the frontier finance hypothesis, it is one of conversion towards hybridity rather than autonomy. Over the period 2006 to 2012, plans embracing a variety of models seem to have been working towards splitting equally their assets between internal and external management. Considering the diversity of models observed in the sample, this means that, in an effort of finding balance rather than independence, some plans are going back to the industry while others shy away from it.

Fourthly, asset allocation data shows that public sector pension plans have a preference to build their internal capabilities around domestic and traditional asset classes. Finally, the spatial distribution of internal capabilities suggests that plans that are at-a-distance from large financial centres tend to be more autonomous. Here, distance seems to entice independence. Conversely, plans co-located with first-tier financial centres appear to have more difficulties to develop their internal capabilities. These findings offer rich spatial descriptions of the frontier finance thesis amongst state and local plans and provide a fertile ground for further interrogation. At this

point, a clearer picture of how public pension assets are managed through space and time is established. While the results allow to formulate hypothesis on the geographical determinants of the dynamics shaping this landscape, the next chapter aims at pushing the enquiry a step further with a formal investigation of such determinants. Chapter 3 has been submitted to be considered for publication in *Territory, Politics and Governance*.

Chapter 4

Investment management has complex and diffused geographical ramifications. Conceptually, one can think of these ramifications developing along two locational axes. The first stands for the origin of investments. It encompasses the origin of invested capital and the location of investment decision-making. The second represents the location of the invested assets. This second axis is more diffused and often entails multiple spatial dimensions, encompassing legal and economic conceptions of location. The practice of investment management is constituted along these two axes. Take the following example: pursuing the advice of a local investment advisor, a U.S. citizen domiciled in Denver, Colorado goes through a local stockbroker to purchase shares of the Swiss company ABB. ABB, an electrical engineering company headquartered in Zurich, has global operations. The stock of ABB is listed on three stock exchanges. In our example, the stocks are purchased in USD on the New York Stock Exchange. Through a single transaction, our investor paid advisory and brokerage fees to local branches of national financial companies, transaction fees

to a New York based stock exchange and gained investment exposure to a single legal entity that generates income from thousands of local operations around the world.

While the example is somewhat trivial, it points to the difficulty of *placing* capital market investments through space. The decision-making is Colorado; the implementation is performed through Colorado and New York. The destination is yet more complex; is it Zurich, Switzerland? The bundle of geographical exposure of ABB? What if the investor's advisor was based in Chicago? Putting those very same locational question in the context of multibillion asset owners with global investments carried out by a combination of internal resources and a web of external contractors, and the spectrum of geographical complexity grows exponentially. Although public pensions do not compete with one another, they are still subject to several external and internal constraints such as market forces and performance obligations. Accordingly, their organisational form is subject to strategic management decisions. As in the previous example, these decisions take place along those two spatial axes, from the origins of capital, through local (internal capabilities) and non-local (external contractors) spaces of decision-making towards global financial markets.

Chapter 3 provides a description of the landscape of public pension plans' asset management practices. The analysis presents assets' origins (contributions), flows (internal and external contracts) and destination (invested assets). In chapter 4, the aim is to 'place' public pensions in relation to the asset management industry. This is done using a multivariate analysis of the assets managed in-house by a sample of state pension plans. The model seeks statistical evidences about why plans manage a certain amount of their assets in-house. Since the analysis is interested in placing the

decision making in the production of investment returns, it begins by establishing a locational point of reference. As it is common practice for state pension plans to operate locally from their respective administrative capital, the selected unit of analysis is pension plans' headquarters.

The primary objective is to identify what factors influence the arrangements observed in chapter 3. Conceptually, these factors are thought to be nested amongst three scales of influence pertaining to the investment of public sector retirement assets in the United States. The micro-institutional scale encompasses variables at a plan level. They include variables such as size, performance and investment data. They are specific to one plan and are inspired by prior scholarship on economies of scale (Clark and Monk, 2013; Clark, 2000; Dixon and Monk, 2014), and on investment returns and funding ratios (Munnell, Haverstick and Aubry, 2008). The meso-economic scale encompasses variables pertaining to plans' metropolitan statistical areas. It includes data capturing plans' local financial sector's vibrancy. It stems from the work of Storper and Venables (2004) on the benefits of agglomeration and co-location for financial institutions as well as the work of Bachher and Monk (2012) and Dixon and Monk (2014) on access to talent for frontier financial institutions. The macro-political scale includes variables on the public administration plans depend on. The variables encompass budgetary and government workforce data. It is inspired by prior scholarship on budgetary interferences and neighbourhood effects (Munnell, 2012a; Munnell, Aubry and Cafarelli, 2015).

The chapter is divided into four sections. First it proposes to describe the conceptual framework including the three scales just exposed. The second section emphasises

locational considerations through a review of the literature dedicated to the dilemma of making-or-buying investment returns. The penultimate section presents the dataset and the econometric model used in the empirical analysis. The final section presents and discusses the results and implications of the statistical analysis. The statistical analysis provides empirical evidences to discuss the relevance of several concepts relating to ongoing debates about the geography of asset management. The results suggest that economies of scale may not be as significant as suggested by previous qualitative research in explaining pension plans' ability to insource their asset management activities. On the other hand, they emphasise the enduring importance of plans' location in relation to the assets they invest in, their access to a vibrant local financial sector and their proximity to major financial centres.

The analysis reveals that plans' investment return ambitions may be the most important factor determining their choice to make-or-buy investment returns. The model suggests that as plans' return expectations increase to arguably unrealistic levels, so does their appetite for externally managed mandates. Finally, the analysis provides further insights on the hypothesis developed in chapter 3 regarding co-location and independence. In particular, the results suggest that autarky, or self-sufficiency, is incentivised amongst plans that find themselves at-a-distance from the industry. This begs an interesting question in relation to labour markets for talented investment professionals. Since distant institutions seem to be more inclined to build internal capabilities, how do they manage to attract the required human capital from a distance given the heavy clustering of specialised labour around major financial agglomerations? This question is addressed in the case-study proposed in chapter 5. Chapter 4 has been submitted to be considered for publication in *Economic Geography*.

Chapter 5

The econometric analysis presented in chapter 4 suggests that the location of asset owners relative to clusters of financial service providers plays an important role in their choice, or rather ability, to insource their investment functions. Conceptually, insourcing requires a combination of technological infrastructure and human capital. Whereas early accounts have emphasised the role of technology in blurring the boundaries of the geography of finance (O'Brien, 1992b; O'Hara, 1995), recent literature dedicated to asset owners and insourcing has emphasised the enduring centralisation and agglomeration of the financial industry (Clark and Monk, 2013; Dixon and Monk, 2014). Those centripetal forces not only shape the geography of capital flows but are also central in determining finance workers' migration flows. It follows that the uneven geography of finance is accompanied by an uneven talent landscape. Financial institutions' performance is highly dependent upon their ability to recruit and retain human capital. Given their distinctive geography (distance from financial agglomerations) and institutional foundations (public sector), state and local plans as well as other large asset owners have had a hard time to compete for talent against the private sector. This is largely because public sector institutions have been under pressure to keep their operational costs, including compensation, at levels that are way below industry standards.

Scholars have emphasised the importance of this compensation gap in explaining why public sector asset owners such as pension funds and SWFs have not been able to implement insourcing in any significant way (Clark and Monk, 2014; Dixon and Monk, 2014). Addressing this issue, Bachher and Monk (2012) have proposed

dedicated research emphasising the importance of differentiating the recruitment strategy of pension plans and SWFs in order for them to attract talent at the frontier of finance. Based on observations of current recruitment strategies, they identified a typology of public funds' employees that describes strategic niches in labour markets for investment professionals. The emphasis is put on workers' distinctive characteristics associated with discounts in compensation relative to "star-performers" (Clark, 2015). The typology entails: 1) the "greys" who are closer to exit the professional world and willing to take a pay cut to "settle down" and "give-back" 2) the "greens" who are entering the professional world inexperienced and hence command lower compensation than their more experienced peers, and 3) the "grounded" who have reduced bargaining power as they are personally tied to a frontier location and less inclined to seek professional alternatives in distant financial agglomerations.

Whereas the model has clear merits, it is not without caveats. As the authors state: "we do see the potential for a different approach in the future; one that makes no concessions to Wall Street investors or the private sector in terms of talent". They further add: "[public funds] may get closer to actually achieving their objectives by targeting a different type of employee altogether". Chapter 5 answers their call by digging deep into a model organisation that does more than survive by way of concessions at the frontier of finance. To do so, it proposes a case study on the human resources of a successfully insourced state pension plan located beyond the frontier of finance. Emphasising the central importance of talent in the production of investment returns, the use of close-dialogue and secondary data offers an opportunity to

excavate thick descriptions on frontier talent as well as a frontier plan's recruitment strategy and the operationalisation of its human resources.

In relation to existing scholarship, chapter 5 proposes to qualitatively review and test the frontier finance thesis (Dixon and Monk, 2014) and elaborate on Bachher and Monk's (2012) typology of frontier investment professionals. Building on the authors' proposition, it emphasises the challenge of investing from a location distant from major investment talent pools. Conceptually, the challenge is framed as a dilemma to either resort to external talent through distant contractors (outsourcing) or in-house talent through local internal capabilities (insourcing). As introduced and discussed in more details in chapter 3 and 4, this chapter keeps the view that insourcing can offer substantial costs savings to investment institutions. By looking closely at a plan that successfully implemented insourcing, it emphasises the importance of combining technological infrastructure and human capital in a way that is consistent with a fund's total risk adjusted return objectives. To this end, the chapter emphasises a collective understanding of investment success and argues for the need to re-define the concept of talent as a collective resource of investment institutions.

Exemplified through the case-study, collective talent is also argued to be a central component of a differentiated recruitment strategy for frontier investors. This redefinition of talent at the margin is contrasted with an individualistic conceptualisation of talent nurtured by private sector financial institutions. The argument is sustained in reference to the emphasis the private sector puts on "star-performers" (Clark, 2015); an emphasis which has largely driven the compensation premium commanded by such individuals in IFCs. To present the argument and

contextualise it in relevant literature, the chapter proposes to bring together a rich and diverse scholarship on talent. Anchoring the discussion in the advent of the “knowledge economy” (Drucker, 1969) the literature review narrates the rise of a highly educated urban class of workers that has regrouped to form concentrated clusters of knowledge and economic privilege. By reference to empirical evidences on income growth and inequalities, financial sector workers are argued to be the epitome of these dynamics.

This division in the talent landscape, between talent deserts and talent clusters, and the high financial rewards on individual talent observed in the financial sector sets the stage for the case study by problematizing participation to the war for talent from the margin (afar and with limited budgetary resources). The case-study is based on 37 semi-structured interviews with staff members and secondary data analysis of a large state pension plan. It first proposes an introductory description of the fund’s local environment and human resources. In a second part, compensation policies are exposed and discussed considering contending perceptions of their fairness amongst taxpayers, politicians and staff members. To take the issue away from ideologically charged debates, it is assessed in a comparative analysis of the salaries for financial managers in four IFCs versus the location of our frontier organisation. This allows to make a point previously omitted by commentators about the importance of local costs-of-living adjustments in comparative income analysis. Whereas IFCs are amongst the most expensive urban agglomerations, frontier institutions are de facto primarily located in mid to small size cities associated with lower costs of living. This neglected geographical characteristic of the frontier should be emphasised as a competitive advantage in recruitment strategies.

The second part of the case study delves into non-financial attributes that make the model organisation, and by way of exemplification other frontier investment institutions, attractive places of work. In particular, the discourse analysis reveals important aspects pertaining to quality of life, both at and outside of work. Clearly established expectations about being at work, a collaborative working culture and local quality of life (short commutes, close community, natural environment) are emphasised as non-financial benefits associated with working at the model organisation. These observations are contrasted with accounts on the work experiences of financiers in major financial agglomerations as reported by participants as well as existing scholarship on the topic (see for instance Michel, 2014 for a 12 year long ethnographic account of Wall-Street's investment bankers all-consuming work practices and culture).

Finally, in terms of talent recruitment, the interviews confirm and expand Bachher and Monk's (2012) typology of the greens, the greys and the grounded. Overall, the results stress the importance of recruitment differentiation. At the margin, the aim should be to shelter from the talent market rather than confront it directly. For the state pension plan examined in the case-study it has been achieved by predominantly resorting to local recruitment and in-house training. A minority of experienced employees were also recruited from the private sector on the back of labour market contractions following the GFC. The case study offers important pointers to frontier investors on how to design and implement a talent recruitment and retention strategy. While the exemplary results of the fund, both in terms of funding status and investment returns speak for themselves, the narrative strives for balance

emphasising the relative fragility of the fund's talent model. This chapter has been submitted to be considered for publication in *Geoforum*.

Chapter 6

Chapters 3, 4 and 5 of this thesis propose an economic geography of insourcing flowing progressively from the macro-quantitative to the micro-qualitative. Chapter 3 starts with a general description and discussion of the national landscape of investment provision through the concepts of insourcing and outsourcing. Chapter 4 proposes an analytical investigation of the institutional, economic and political drivers of the arrangements observed in chapter 3. Through an empirically grounded discussion of insourcing amongst state and local pension plans, these two quantitative chapters show the complex geography of pension asset management. The results, material and relevant to a larger community of frontier asset owners, reveal an intricate web of geographical variables that shape public pension plans' resource allocation between in- and outsourcing, from their local environment, through large clusters of finance and towards global financial markets. The importance of relative location between individual asset owners and vibrant labour pools motivates the elaboration of chapter 5 which casts on the issue of talent attraction and retention at the margin.

These three chapters provide a spatial analysis answering key under-researched sub-topics of insourcing, namely: 1) how are public pension plans organised to manage their financial capital? 2) what is driving their specific arrangements? And 3) how can

frontier investors attract and retain talent at the margin of finance? Elaborating on the findings and propositions of these three chapters, chapter 6 proposes a theoretical framework of insourcing. The main challenge in elaborating general theory on the topic is that the organisational field is characterised by local particularities. As shown throughout the first three substantive chapters, the dilemma of making-versus-buying investment returns is deeply embedded and constrained by variegated local characteristics. Since differences in context call upon differences in organisational arrangements this chapter tries to navigate a fine line between the general and the particular. To this end, it proposes a theoretical framework of insourcing that recognises diversity and gives weight to the “problem of embeddedness” (Granovetter, 1985).

Using triangulation based on exiting scholarship, close-dialogue and quantitative data, the chapter develops six conceptual dimensions of insourcing. These dimensions include: cash-flows, economies of scale, asset allocation, compensation, location, and fiduciary duty and oversight. These dimensions are identified for the importance they play in managing internal assets effectively and are discussed considering how they vary across institutions. Rather than a forceful elaboration of best-practices, this chapter elaborates a proposition of analytical building-blocks. It contributes important insights to think comprehensively about the challenge of insourcing across institutions embedded in different local contexts. The chapter gives special attention to variations in financial economics, local politics and regulation, governance, and geography.

As a way of introduction, the chapter first proposes to review the spectrum of public policies so far considered and implemented to attend to the underfunding of public pension systems in the United States. This provides the backdrop to introduce insourcing as an underappreciated solution. Advocating for the potential of insourcing to improve the performance of asset owners, the chapter also acknowledges the significant contextual differences that exist across a landscape regrouping close to 4'000 disparate and disconnected institutions. As argued by Clark and Monk (2014a), the local dominates the global. To give weight to local contexts and embed the problem of insourcing in socio-economic relations, the second part of the chapter proposes to review public pension plans' lax regulatory environment, heavy local political underpinnings and varied governance structures. The penultimate section develops and discusses the six dimensions of insourcing.

Theoretically, these six dimensions have status in reference to the work of scholars in economic geography, pension economics and financial economics. The work of Clark and Monk on institutional investors spanning close to two decades inspired this chapter and is instrumental in the discussion of the dimensions on cash-flows and economies of scale; these two dimensions are derived from the authors' latest book *Institutional Investors in Global Markets* (2017) as well as selected journal publications (in particular Clark and Monk, 2016; Clark and Monk, 2013b; Clark and Monk, 2013a). Asset allocation is discussed separately for its importance in economic geography in reference to home bias and competition for talent as well as for the central importance it plays in investment returns (Brinson, Hood and Beebower, 1986).

Compensation, dimension four, is rooted in the economics and economic geography literature dedicated to wages in the financial industry (most importantly see Philippon and Reshef, 2012; Wójcik, 2012) as well as a dedicated stream of research focused on the issue of compensation amongst public investment institutions such as pension funds and SWFs (Clark and Urwin, 2008; Clark and Monk, 2013). The discussion on location, dimension five, is directly inspired by the frontier finance thesis and looks at the implication of co-location and distance for institutional investment management (Dixon and Monk, 2014). Finally, the sixth dimension, fiduciary duty and oversight, is largely inspired by scholarship on the governance of financial institutions by Clark and Urwin (2008) and their latest publication on investment management models (2017).

Overall, the chapter contends there is untapped potential for state and local plans to insource their investment functions and emphasises its role in addressing a looming retirement crisis. Given the great diversity observed across plans, the chapter argues in favour of approaching insourcing in a manner that is consistent with the particularities of local contexts. Generally, plans are advised to only consider the organisational changes required to insource their investment functions if they can reasonably expect support and commitment from their sponsors. With regards to implementation, scale economies (in reference to total assets under management) should not be evaluated as an isolated determinant of insourcing. Rather the chapter argues that strategic asset allocation provides a better lens to think about in- and outsourcing.

The issue of compensation is discussed considering the existing double standards in accounting between investment expenses and management fees and is tied to ongoing public and political pressures on the issue. Notwithstanding the importance of a reform in accounting standards, I argue that under current regulations, differentiation is instrumental to public plans' recruitment strategies if they are to overcome the pay-gap issue. The problem of location relative to financial service providers is argued to be best addressed in relation to plans' size and their investment strategies; while large plans have the luxury of choice, I argue here that smaller institutions may want to invest their limited resources tactically by favouring a blend of low cost internal expertise and low-cost passive investment strategies. Finally, I argue that insourcing is not only about saving on investment costs but should be further considered as an integral part of pension plans' governance mechanisms. This chapter has been submitted to be considered for publication in the *Journal of Retirement*.

1.3 Limits of enquiry

Before delving into the core of the thesis, it is appropriate to point-out its main limitations. First and foremost, the empirical work presented here has limited geographical and institutional scope. While the findings are as often as possible identified for their relevance to a larger set of financial institutions with an asset management function, they are at times specific to state and local pension plans in the United States. There are two main reasons behind this. The first has to do with a concern for adequacy. As previous authors have pointed-out, public pension plans form a group of institutions characterised by diversity and embeddedness (Clark and Monk, 2014). As a result, the challenges faced by these institutions are at times unique,

require specific attention, and do not always lend themselves well to comparative analysis with seemingly akin institutions.

The second has to do with a concern for practicality. As pointed-out in the methods section as well as in the subsequent chapters, data availability, reliability and transparency, access to insiders as well as the time constraints inherent to a doctoral thesis limited the possibilities to expand the investigation to other types of financial institutions. Difficult to overcome in the context of this thesis, these empirical limitations call for further research; particular avenues for future scholarship on the production of investment returns and institutional investors are discussed in more details in the penultimate section of the conclusion. Finally, insourcing was chosen as the analytical core of this thesis and is presented as a fundamental tool in improving the solvency and performance of beneficiary institutions. It should however not be understated that there are several additional policy reforms which are as important in addressing the deep crisis faced by public retirement systems in the United States and elsewhere. In particular, the political dynamics underpinning the regulation, or lack thereof, of these institutions would deserve further scholarly attention. These are covered peripherally in chapter 6.

2. LITTERATURE REVIEW

Each of the next four chapters covers key topics of insourcing and incorporates a dedicated literature review. The following literature review serves a different purpose. Regrouping the themes covered in the individual chapters into overarching concepts, it grounds the flow of academic thoughts that underpin and connect the four substantive chapters into a comprehensive research project. This thesis is first and foremost about financial institutions. It is interested in the relationship between asset owners and financial intermediaries. Insourcing provides the main conceptual lens through which the dynamics of this relationship are investigated. It is defined as managing parts, if not all, the investment processes of a financial institution using internal employment contracts. Conceptually, it is central to this thesis and guides a broader discussion on the “geographical reach” (Clark and Monk, 2013) of financial institutions, from the local to the global via intermediation.

The frontier finance thesis originally proposed by Dixon and Monk (2014), is foundational to the work presented here. Following the authors’ call, it explores a new financial geography where distant asset owners that owe their location to jurisdictional prescriptions have come to challenge the financial industry by insourcing their investment management activities. This trend represents a significant paradigm shift as institutional investors have traditionally been largely outsourced financial institutions (Clark and Monk, 2013). “Pushing back against the misaligned incentives and power asymmetries present in the for-profit asset management industry” (Dixon and Monk, 2014), this new breed of frontier financial institutions offer concrete avenues to explore how contemporary finance reconciles expanding

territories of investable assets with the investment constraints of place-bound asset owners. In particular, it presents an opportunity to delve into the seeming paradox between the intensifying spatial agglomeration of the industry and the increasing possibilities to access financial expertise, information and capital flows remotely via technological means.

This literature review provides a backdrop to the in-depth discussions offered in the following chapters. In light of existing scholarly accounts, I argue that investment returns are best produced when individual talent, encompassing codified and tacit knowledge, meets efficient market information. The argument is developed in reference to geographical considerations relative to the dislocation of frontier finance institutions and IFCs. I elaborate by first reviewing relevant literature about insourcing. Insourcing is discussed both theoretically and empirically for its strengths and weaknesses as well the opportunities and threats it may represent across a landscape of asset owners with different investment objectives, organisational characteristics and local political and economic environment. In that sense, insourcing is not conceived as the only operative solution but an option that holds relative potential. This echoes Clark, (2008) and Clark and Urwin (2008) who stress that fixed structural choices between insourcing, outsourcing or combining both strategies, do not guarantee functional performance.

In the second part of this literature review I propose to discuss insourcing in light of selected scholarship in financial geography. In particular, I review academic debates about the importance of geography in the production of investment returns in general, and in relation to insourcing in particular. To do so, I identify and connect key streams

of literature. First, I propose to discuss agglomeration economies and IFCs as they provide context to engage with further theoretical discussions on the spatiality of knowledge and information. These themes are central to the quantitative empirical work presented in chapter 3 and 4. Finally, I bring forward the unevenness of the talent landscape and discuss its implications for insourcing in relation to compensation. This discussion largely underpins the elaboration of chapter 5. Given the larger scope and theoretical ambitions of chapter 6, it can be seen as a comprehensive piece that binds the scholarly discussions presented hereafter together with the original discoveries from chapters 3, 4 and 5.

2.1 Insourcing

The present thesis is inspired by and contributes to the work proposed by economic and financial geographers on the asset management industry, institutional investors and the topic of insourcing. It also builds upon other interrelated fields of scholarship. These include pension economics, asset management, urban economics and human resource management. While the thesis claims no contributions in these specialised fields, it binds an interdisciplinary knowledge base with empirical findings and theoretical developments to constitute a distinctive geographical analysis of the topic of insourcing. It therefore stands as an original contribution in financial geography. The concept of insourcing is central to the whole thesis and underpins each chapter. Throughout, insourcing is explored as a fundamentally geographical phenomenon. The concept is explored concomitantly with outsourcing, the flip-side of the same coin. While outsourcing is about managing a network of external contracts, insourcing is about organisational autonomy. Both strategies compete with and complement each

other as means to produce superior risk-adjusted investment returns. Outsourcing is performed through third party contractors (local or distant), via extensive and dispersed geographical spaces, whereas insourcing bypasses contractors and is performed locally, from a given geographical space, directly towards global financial markets.

Asset ownership and the dilemma of making-versus-buying a given economic output are long standing topics of enquiry in industrial organisation and organisational economics. The dilemma has been examined and addressed in various ways across industries and geographies (see Baker and Hubbard, 2003 for a general theoretical discussion). In finance, as stressed by previous commentators, asset owners such as pension funds and SWFs have been almost entirely outsourced (Clark and Monk, 2013), preferring to buy rather than make investment returns. At the root of this tradition of outsourcing are the costs associated with representing the required infrastructure, information and expertise within a single asset owner compared to use the services of highly scalable asset managers that pool larger quantities of assets. While outsourcing has been recognised to be the preferred mode of investment of asset owners such as pension funds, SWFs and endowment funds, there is still a paucity of empirical work that demonstrate the extent to which these financial institutions are outsourced in practice and what factors, beyond economies of scale, motivate their organisational arrangements.

While insourcing is viewed as a relatively new mode of functioning for institutional investors, it has gathered significant scholarly attention in recent years. Empirical work found in a dedicated pension economics literature has so far focused on

functionalist perspectives discussing its added-value as an investment management model. In this body of work, the emphasis is put on costs savings and net returns on investments. The central argument supporting insourcing investment functions is that fees on external mandates tend to eat into investment returns. This was empirically demonstrated by Hooke and Walters (2013) in a study covering 53 large public pension plans in the United States. The authors showed that plans with above average external investment expenses also underperformed their peers. These findings can be tied to broader discussions about the value-added of financial intermediaries in asset management.

In a rather critical study Lakonishok, Shleifer and Vishny (1992) argued that external contractors rarely produce superior investment returns. According to the authors, outsourcing is often motivated by soft factors (hand-holding) and sponsors' desire to transfer responsibility for investment decisions: "Much of the organization of the industry seems to be driven by its need to provide sponsors with good excuses for poor performance, clear stories about portfolio strategies, and other services that are related only vaguely to performance". One should note that in the early 1990's the argument pertaining to the value-added of external managers was also entangled with another debate, somewhat still ongoing, on the added-value of active investment strategies relative to passive ones. Both dilemmas, insource versus outsource and passive versus active are primarily motivated by functionalist concerns over cost-effectiveness.

While the adoption of these strategies has been varied and contingent to the specific investment objectives of different financial institutions, overall passive investment

strategies have been much more widely adopted than insourcing. This is consistent with, and symptomatic of, the lack of institutional change in the financial industry. As argued by Merton and Bodie (2005), financial institutions have largely focused on contractual innovation generating increasingly diverse range of financial products and services. In that context, passively managed investment funds such as index-trackers and Exchange Traded Funds (ETF) have gained significant market shares over active strategies. Cremers *et al.* (2016) noted the growth in popularity of index-tracking mutual funds. Already representing 14 percent of the equity mutual funds market in 2002 it grew to 22 percent in 2010. Insourcing on the other hand seemed to have gained a lot less traction. Clark and Monk (2013a) noted: "...the traditional institutional investor was almost entirely outsourced, rarely possessing the expertise and competencies to execute even the most basic financial transactions without the help of some external advisor".

Considering the numerous benefits stressed by scholars and experts alike, the weak adoption of insourcing amongst asset owners is somewhat puzzling. As Clark (2017) puts it: "Insourcing is an opportunity to directly manage costs, maintain an integrated investment strategy, and serve the goals and objectives of the organisation rather than industry norms and conventions". In particular, Clark and Monk (2013a) identify five key incentives for asset owners to insource the production of investment returns; namely, insourcing can help: 1) accessing a specific market or asset more efficiently through direct investment instead of using third-party products and services 2) aligning the interests of the organisation with internal employment contracts, which can prove difficult to realise with external providers 3) improve the ability of an organisation to oversee its operations effectively 4) improve significantly net of fees

performance through effective cost management, and 5) enhance sustainability by tailoring a portfolio that is engineered to fit the institutions' specific needs.

Empirical evidences about the benefits of insourcing for asset owners support these arguments. In a global quantitative study of pension plans led by CEM Benchmarking, MacIntosh and Scheibelhut (2012) show that internal management saves an average of 36 basis points in performance for every 10 percent increases in AUM allocated to internal management. Pension funds experts and scholars Roger Urwin and Gordon Clark also estimate that the costs of internal to external management are 1:10 if not greater (2008). While evidences make a strong case in support of insourcing, the benefits seem to have been underexploited. One key issue is that these evidences were drawn from average observations based on samples of geographically dispersed financial institutions that face significantly different challenges pertaining to their distinctive tasks and functions and varied local contexts. While these observations carry an important message about the potential benefits of insourcing for asset owners, they also somewhat omit to give enough weight to distinctive institutional and contextual characteristics. Focusing on public pension plans in the United States, the present thesis digs deep into the issue of institutional and context specificity following the idea that "economic action is embedded in structures of social relations"; this "problem of embeddedness" (Granovetter, 1985) is at the root of the four substantive chapters presented hereafter.

At an institutional level, qualitative differences in investment objectives, asset allocation, and their incidence on in- and outsourcing strategies have been given very little attention by scholars. For instance, DC plans usually offer several investment

programs that effectively dilute their assets and may reduce their ability to benefit from economies of scale compared to DB plans (National Institute on Retirement Security, 2015). Similarly, because investment expenses are effectively charged to the beneficiaries, DC plans may be less inclined to monitor costs as closely as DB plans that must match projected pension liabilities (for a discussion on performance monitoring see Coronado, Engen and Knight 2003). The investment objectives of a DB plan facing 40 percent unfunded liabilities is also likely to differ substantially compared to those of a fully funded plan. These institutional differences will result in significant differences in investment risk appetite requiring different investment solutions, some which may be better suited to insourcing than others. As demonstrated through rigorous empirical analysis in chapter 4 and 5, the choice of in- and outsourcing is largely contingent upon investment return objectives and the differences in human and technological capital required to manage different asset classes.

Similar differences also exist with regards to time horizons. A SWF without liabilities to manage has more flexibility in designing its investment strategy. It may for instance right-skew its asset allocation towards longer-term commitments compared to a pension plan that faces target-date obligations. Similar distinctions could be made amongst different pension plans. A pension plan with adverse demographics is likely to have shorter term investment commitments as it needs to pay-out more benefits than it receives contributions. Again, the resulting differences in time horizons and investment return objectives will likely lead to different investment strategies. Depending on individual characteristics, some strategies will be adapted to be managed in a cost-effective way within the organisation and others will be better

served by external contractors. All of these differences have been under-explored by dedicated scholarship and are addressed specifically in the econometric analysis presented in chapter 4.

So far, the organisational characteristic that has been given the most scholarly attention in relation to insourcing is the principle of economies of scale. Generally, and provided that other factors remain the same, economies of scale are observed when the cost of production decreases as output increases. In the context of managing financial capital, assets under management (AUM) have been treated as the output. This is rather unsurprising given the unanimously adopted industry convention to charge financial services based on a percentage of committed funds which decreases as commitments increase. Given this cost structure, studies such as Hsin and Mitchell (1997) have presented clear evidences of economies of scale in private and public pension plans.

Scholars and experts alike contend that economies of scale matter to financial institutions. In fact, a large body of research on the organisational characteristics of asset owners is underpinned by a scale based taxonomy of financial institutions (see most notably Clark, 2000; Clark, 2008; Clark and Monk, 2013b; Clark and Monk, 2016). In this extensive body of work, theoretical and empirical commentary on the relations between asset owners and the financial industry has been largely explained as a product of economies of scale, distinguishing organisational arrangements and contractual relations between small, medium and large asset owners. Interestingly though, by how much economies of scale matter, is still subject to ongoing debates. For instance, Dixon and Monk (2014) stated that "...sufficient scale is an empirical

issue. ...in our experience, the pension funds that even consider bringing asset management back into the organisation generally have assets in excess of US\$25 billion”.

However, empirical evidences suggest that the bulk part of economies of scale for asset managers occur at significantly lower levels of AUM. Collins’s (2003) analysis of the investment expenses of mutual funds and public pension plans demonstrated that scale economies are most significant to funds with AUM in the range of hundreds of millions of USD. As the study showed, a 25 million (mn) USD plan pays on average 65 basis points more than a 250mn USD plan which pays only 30 basis points more than a 65bn USD plan. This is explained by the fixed costs that weigh much more heavily on smaller institutions. While the findings confirm the existence of scale economies, they primarily profit to smaller institutions managing tens and hundreds of millions rather than billions of USD. This suggests that there may be other unexplored institutional characteristics, which may be coincidentally correlated with plan size, that better explain asset owners’ choice to in- or outsource their investment management activities. For instance, one will note a paucity of research on how investment objectives, time horizons and the geography of investments, encompassing both the place of decision-making and the place of invested assets, impact insourcing decisions. These dimensions are explored in detail throughout chapters 3, 4 and 5, and are comprehensively put together in chapter 6 which proposes six analytical building blocks of insourcing for public pension plans.

In general, insourcing requires from financial institutions to be able to replicate internally and in a cost-effective way the tasks and functions provided by the markets.

The work of Clark and Monk on insourcing has provided rich theoretical and empirical discussions in that respect. Specifically, the authors have developed three pillars of insourcing revolving around the themes of governance, information, and talent (see most notably Clark and Monk, 2013a; Clark and Monk, 2017). While governance is treated more extensively in chapter 6, the next section of this literature review gives particular attention on information and talent. Not to withstand its importance, one will note here that while good governance is central to the performance of financial institutions, it is fundamental for those that insource all or part of their investment process (Clark and Monk, 2013, 2014).

As discussed more extensively in the next section dedicated to agglomeration economies, the financial industry has a spatial organisation that pools labour, knowledge and financial capital around a handful of key urban spaces. From the perspective of asset owners located outside of these clusters of finance, access to information and talent can prove challenging. For distant asset owners, insourcing is highly dependent upon their ability to “...mobilise information at the margin of markets” (Clark and Monk, 2013). The development of electronic markets and financial information providers such as Bloomberg and Thomson Reuters has significantly increased the flux of remotely accessible investment data. Some have argued that these developments have to an extent, flattened the map of finance and by extension that of institutional investments (for a more detailed discussion on contentions about the end of geography in finance see O’Brien and Keith, 2009). However, there are still limits to the ability of information technologies to bridge distance. For instance, asset owners are still dependent upon “non-commodified information” (Clark and Monk, 2013) which circulates in closed inter-personal circles

and therefore can only be accessed by co-locating part of an organisation with major financial centres.

Whereas “investing-at-a-distance” (Clark and Monk, 2013) was made possible by technological advancements, sound investment decisions are still contingent on combining efficient information with sound decision-making. Notwithstanding the advent of technologically intensive and semi-autonomous investment strategies such as high-frequency trading platforms and passively managed funds such as ETFs and index trackers, investment decision-making remains a predominantly human capital intensive task. Given the centrality of human capital in the production of investment returns, talent recruitment has been a highly debated topic in relation to insourcing. In particular, the recruitment and retention of talent amongst distant asset owners has been stressed as an important factor explaining their difficulties to insource investment functions. Indeed, the process of increasing agglomeration observed in the financial industry has been accompanied by the hyper-concentration of talented financiers in a handful of key spaces around the globe. As noted by Clark and Monk (2013b): “Investors must consider where they are physically located before launching an in-sourcing policy that requires special skills or access”. Accordingly, the notion of co-location has gathered a significant amount of commentary in relation to the spatial configuration of the investment management industry.

2.2 Why and how geography matters in the production of investment returns?

Now that I have set the stage by reviewing the functionalist case for insourcing, I propose to discuss scholarship on the geographical characteristics that may constrain the implementation of the model. Whereas asset owners are often decentralised and dispersed, the financial industry is heavily concentrated around a limited number of major urban agglomerations. While the establishment of major urban centres of finance has a long and complex history, the acceleration of globalisation in the 1970's has increased the influence and the growth of key cities (for a detailed historical perspective on financial centres see Cassis, 2006). At this point, concentration and competition really took-off. Early academic commentators such as Howard Reed (1981) took on the task to provide reflections on the competitiveness of IFCs, exposing a significant change in the landscape of global finance. Today, a handful of key cities dominate finance-led capitalism. Parallel to these developments, the 20th century was also characterised by an increase in the number of institutions pooling enormous amount of financial capital to be invested in global financial markets. The advent of super-funds such as SWF, pension and endowment funds, which marked a new era for power relations in financial markets, was aptly coined by Clark as pension fund capitalism (2000a).

Since public pension funds and SWF owe their existence to political mandates, they are dispersed across geographical space and often found outside major clusters of finance. This dislocation has provided a new opportunity to debate the importance of geography in the production of investment returns. The fundamental question boils-down to the following: from the perspective of local financial institutions looking

towards global financial markets, how does geographical distance relative to clusters of finance impact their ability to function independently? In other words, does geography matter in the production of global investment returns and if so, how does co-location and distance with the industry as well as with investable assets impact asset owners' ability to insource their investment functions? These questions are discussed in more details and answered in light of empirical findings in chapter 3 and 4.

In order to give further theoretical status to the findings presented in these chapters, I propose to first review here key streams of literature that pertain to the location of financial institutions. First, I briefly review a broader body of research dedicated to the formation of agglomeration economies. It provides some background as to why economic activity in general, and the financial industry in particular, tend to cluster around key urban spaces. I then propose to expand on the concept of knowledge flows with particular reference to its central importance to the financial industry. Building on the relationships between agglomeration, knowledge and the production of investment returns, I then review literature on the topic of home bias. Finally, I propose to revisit the talent literature with particular reference to the underpinnings of high-skills workers' migration flows. This last section provides the analytical backdrop for chapter 5. These interdependent streams of research set the stage for the individual research questions explored in the four chapters and embed the specific discussions in a broader economic geography literature. The penultimate chapter of the thesis (chapter 6) proposes to look at these themes comprehensively by evaluating their relevance in the context of insourcing.

Agglomeration economies

Agglomeration economies is a key topic in economic geography. Discussions centre around explaining their formation, the characteristics underpinning their competitive advantages as well as larger discussions on their implications for capitalist societies including negative externalities, uneven development and spatial inequalities. One of the key characteristic of agglomeration economies is that they pool workers providing local firms with deep pockets of skills and expertise. However, the dynamics attracting workers and firms to designated geographical locations often intertwine and are not always easy to delineate clearly. As noted by Kerr *et al.* (2016) one of the foundational theoretical framework of workers' migration dates back to John Hicks (1932) who noted that human capital mobility relates primarily to wage differences between locations. Since then, there has been an extensive research production that maps uneven wage distribution across geographies, industries and social classes (see most recently Piketty's *Capital in the Twenty-first Century*, 2014).

Glaeser and Maré (2001) showed that U.S. cities offer on average a 33 percent wage premium relative to non-urban areas. The non-negligible finding of their study is that this premium is in fact the product of not only a level but also a growth effect. Workers moving to a city first capture an immediate increase in income due to re-location (level effect) and then experience further increase over time (growth effect). These differences in wages between cities and non-urban areas can be explained by several factors relating to agglomeration economies' competitive advantages. In general, agglomeration economies are thought to boost the productivity of workers and firms by efficiently pooling capital and labour together. They have three main

characteristics 1) they bring together “specialised and complementary producers” that form a network of interconnected firms, 2) they build upon large labour markets encompassing scope and depth of competences and 3) they facilitate “learning and innovation processes” through “socio-economic interactions” (Scott, 2011).

These general characteristics of agglomeration economies are observed in meaningful ways in the financial industry. Because the business of finance is money, the pooling of financial capital in financial centres is a major contributor to explain the spatial configuration of the industry. Metaphorically looking at commonalities between money and mercury, Clark noted that money flows “at speed...between well-defined origins and destinations” emphasising that commercial imperatives and economies of scale entice the collection of small amounts of money into “large financial institutions” (Clark, 2005). Similar clustering dynamics are observed amongst firms, indicating the importance financial institutions attach to maintaining proximity with their peers.

Discussing the emergence and establishment of London as a leading financial centre, Clark (2002) noted that, albeit the increasing importance of virtual platforms serving global financial transaction networks, the production of global financial products has remained remarkably spatially contained. While this dynamic has fuelled the global dominance of a handful of top-tier financial centres such as London and New York, Engelen and Grote (2009) argued that virtualisation has nonetheless triggered the decline of smaller second-tier financial centres such as Amsterdam and Frankfurt which, as the authors noted, used to be the “anchors” of European finance. This hyper spatial concentration has allowed financial institutions to benefit from economies of

scope and scale and build upon complementarity between separate tasks and functions (Clark and Monk, 2014).

Concomitantly to the decline of second-tier centres, top-tier centres have reinforced their dominance, establishing powerful and interdependent networks. This dynamic is exemplified most powerfully in the close relations between New York and London. As argued by Wójcik (2013) the two cities, which rapidly expanded their securitisation activities on the back of 1990's financial deregulation, placed themselves at the top of the pyramid scheme that led to the market crash of 2008, benefiting the most while others, "...often in peripheral locations, far from the axis, joined the pyramid last and lost most". In this rise of hegemonic financial centres, "capitals of capital" (Cassis, 2006) have become brands in and of themselves whose fate is intertwined with the reputation of the institutions that constitute them (see Engelen and Glasmacher, 2011 for further discussion on urban boosters and the strategic framing of IFCs).

While a handful of IFCs exert global dominance, they also have developed differently according to local complementary specialties, instating a global production network of finance. For instance, Dörny (2016) noted that in the mutual fund industry, Dublin and Luxembourg have come to specialise in "depository banking, valuation, documentation and reporting" while London has specialised in investment management services, investment advisory and financial engineering. In this instance, complementarity of dislocated tasks and functions is enabled by cross-border collaboration via technological means. Specialisation is often the product of differences in local innovation and regulation processes. It is important to note that, although financial centres are often looked at as competing spaces of financial service

provision, relatedness and complementarity between them is also essential to their existence and competitiveness on global markets. From the perspective of frontier asset owners, this spatial organisation combining agglomeration and network economies, means that co-location cannot be simply obtained by operating a satellite office in Wall-Street but would require establishing presence across multiple geographies. Given this particular geography, it may be easier for asset owners to find a way-in the network through relational contracts (outsourcing) rather than employment contracts (insourcing). This was aptly problematized in Clark and Monk's (2015) discussion on the production of investment returns in "spatially extensive financial markets". This perspective would suggest that the dilemma of in-versus outsourcing is not stimulated by an issue of dislocation but rather one of disconnection from the network.

Strategic locations: decision making and asset geography

Several studies have looked at the role played by knowledge in agglomeration economies. Early accounts such as Marshall (1920) investigated the competitive advantages of place-specific industries and were interested in the role of knowledge spillovers to explain their success. Since then, the importance of knowledge has grown immensely with the decline of manual labour and the advent of the knowledge economy. Recent commentaries have proposed refined conceptualisations of knowledge, its production and transmission as well as its geography. Tacit knowledge, contrasted to explicit knowledge, is recognised as an essential component of the "learning economy" (Gertler, 2003). It escapes codification, is acquired through

experience and is central to innovation. Tacit knowledge encompasses what Clark and Monk (2013c) also referred to as non-commodified information which is of great importance to financial institutions. Spatial proximity or co-location is key to knowledge production and transmission; as stated by Storper and Venables (2004), knowledge “rubs off” on people in places such as the Silicon Valley and the City of London.

Gertler (2003) identified three distinct geographical conceptualisations of tacit knowledge. The first postulates that tacit knowledge is found in individuals; it is embodied in talented workers. The second view postulates that it is found in “learning regions”. According to this view, tacit knowledge is spatially bound and does not travel well. This view gives importance to clusters as knowledge centres. Finally, a third view states that knowledge is found in “communities of practice”. In this instance tacit knowledge is created and exchanged between similar institutions that maintain a relational rather than a geographical proximity. Cook *et al.* (2007) study on the city of London argued that spatial proximity is key to financial institutions. Here the authors ascribed to the learning region thesis, viewing geographical space as a key enabler for tacit knowledge to be acquired through “social interactions” which are strengthened by the bond created between two parties sharing the “common culture” tied to specific agglomerations. Their study further emphasised the benefits of labour pooling observed in major IFCs which allow financial institutions to tap into a vibrant supply of talents that supports creativity and the learning of best practices. In their study, the possibility for actors to engage in face-to-face contacts with suppliers and clients was a highly valued feature of agglomerations.

I would argue that the world of finance offers an interesting case where the three views (individual, region and network) are often complementary and intertwined. Indeed, as argued in the previous section, major financial centres often operate as co-dependant specialised agglomerations that pool knowledge workers together (see Dörnyei, 2016 on the mutual funds industry). IFCs and other significant clusters of financial activity constitute knowledge regions with centripetal forces that attract talented individuals, facilitate intra and inter-organisations mobility while maintaining a global network of interactions. This view is consistent with Bathelt and Cohendet (2014) who argue that local and non-local knowledge are increasingly interwoven, and are shared between creative agents and communities through “knowledge platforms”. As the authors stress, spatial proximity is only one component of agglomeration. To be productive, it needs to be activated through social and/or economic action, by what they refer to as “organised proximity”, which flows from “the need to actively create opportunities for knowledge creation between actors”.

This observation is closely related to the point made previously about distance as best understood as one of disconnection from a network of institutions and a collection of places rather than dislocation from a single physical space. Outsourcing is a way to piggyback on the network economies that bind together financial service providers; it provides a way-in the knowledge that circulates within spatially extensive networks of providers. Insourcing on the other hand is in part removed from this network and relies on an asset owner’s ability to recruit, produce and operationalise knowledge, arguably regardless of its location; indeed, given the asymmetric nature of the relationship between the buy-side and the sell-side of the industry, one may doubt

significant knowledge exchange can happen between co-located insourced asset owners and asset managers.

Besides the relative proximity of asset owners to investment service providers, co-location can also be understood in terms of proximity between the place of decision-making and investable assets. Co-location with agglomeration economies allows knowledge sharing and spillovers between firms and market participants through efficient face-to-face contacts while “communities of practice” (Gertler, 2003) link together distant spaces that offer complementary tasks and functions. Major financial agglomerations also act as grounded pipelines of global information and transaction flows through market exchanges. Decision making takes place via complex links through a handful of locational nodes. The New York Stock Exchange, which lists over 2400 international companies, ingests a daily volume of over 3 billion trades. This is the dominant order of the investment management industry. In this context, co-location can be understood as having a physical presence near financial assets’ exchanges. On the other hand, co-location can also be understood as being physically close to the underlying invested assets. However, in comparison to the financial industry, global economic activity covers far more expanded territories. An asset owner with hundreds of millions, if not billions to invest, will seek diversification across multiple industries and geographies. It follows that the investable universe of global asset owners is, in theory at least, immensely vast.

The implication of this territorial spread is that co-location with hubs of economic activity would prove practically impossible. There are nonetheless empirical evidences that showed that asymmetries in information between local and non-local

investors can benefit investment managers by co-locating the place of investments decision-making with the headquarters of invested companies (Coval and Moskowitz, 2001). This finding would, in theory, justify a heavily fragmented asset management industry that operates multiple satellite offices co-located with dense areas of corporate headquarters. This is only seldom observed in practice and confined to small scale funds operating in remote areas.

It is however common practice for investors' to markedly prefer proximate, in a large sense, (national rather local) over distant (foreign) securities. Although the territories of investment opportunities have dramatically expanded in recent years, this home bias keeps tilting asset-allocations towards domestic investments (see Dupuy, Lavigne and Nicet-Chenaf, 2010 for a dedicated review of the literature on home bias). The uneven distribution of capital combined with domestic returns optimism have important implications in explaining the capital flows of international stock markets (Portes and Rey, 2005). Indeed, developed economies which hold the largest capital stocks also keep overinvesting in themselves. This is typically observed amongst large asset owners. In the United States, public pension plans which have close to 4tn USD invest an average of 76 percent of their assets in long exposures to domestic equities and fixed-income securities (The Center for Retirement Research at Boston College, 2016).

Given the significant commodification of market access and information in domestic equities and fixed-income, they constitute highly efficient and liquid asset classes that can be purchased timely, at fair-value and at-a-distance. Given the efficiency of these investments, there are few opportunities to outperform the markets so that the talent

field is shallower and compensation premiums on top talent generally lower than in less efficient asset classes. These distinctions, have significant implications for insourcing and are discussed in more details hereafter. Chapter 3 and chapter 4 look more closely at the asset allocation of public pension plans. They discuss home bias and public pension plans' preference to insource domestic investments in equities and fixed income, and to outsource their investments in distant and complex asset classes. This foreshadows a deeper investigation of the concept of talent in investment management and links the macro-quantitative work presented in chapters 3 and 4 with chapter 5 dedicated to talent.

Talent landscape

Talent attraction and retention is a fundamental component of insourcing. The concept of 'war for talent', introduced by McKinsey in the early 2000's, highlights the importance of human capital in contemporary capitalism. Given its centrality to the performance of financial institutions, there is a fierce competition for talent in the financial sector. IFCs and clusters of finance benefit from centripetal forces attracting and pooling together talented investment professionals from around the world. These agglomerations provide scope and depth in the representation of skills and expertise and give flexibility to employers and employees to regularly renegotiate employment contracts and profitability. While financial institutions as well as financial workers do at time relocate, they do so within the confined boundaries of the industry, between a handful of key places around the world. Given the extent of this spatial concentration, commentators have expressed concerns over the difficulties to attract and retain talent

for institutions that are geographically located at the margin of these employment networks (Clark, 2000b; Bachher and Monk, 2012; Dixon and Monk, 2014).

As argued by Christopherson (2002) competition for talent is particularly strong in Anglo-American economies as skills tend to “reside in the individual” rather than in institutions as observed in coordinated economies. There is a rich economic geography literature dedicated to talent that shows the competitiveness of the United States in global talent migration. Kerr *et al.* (2016) note that the United States alone have historically received close to 50 percent of high-skilled migrants within the OECD. The country’s international competitiveness is also accompanied by further strong competition within its national borders between regions and cities. The authors note that one eighth of STEM jobs, which stands for jobs with a strong component of science, technology, engineering and mathematics, are found in Southern California, the Silicon Valley and New York City. The empirical work of Richard Florida on the geography of talent also shows the high talent concentration observed in and around major American cities (Florida, 2002a, 2002b; Mellander and Florida, 2012). As Gertler, (2003) puts it, this uneven talent landscape is a product of “social processes” that “rest on the social (and physical-environmental) character of firms, cities, and regions”. Acknowledging these dynamics, firms as much as cities have vested interests in engineering and fostering environments that help attract and retain talented individuals (see for instance Dörry, Rosol and Thissen, 2016 for a critical account on Zurich's creative industry policies).

This unevenness is also observed in the financial industry which is dominated by major urban clusters of international finance. In the United States, New York, Chicago,

Boston and San Francisco largely dictate national and international talent flows. Before getting into further discussion on this issue, it is worth briefly characterising the concept of talent to avoid semantic confusion as well as to reflect critically on the debates surrounding it. In general, talent is associated with increases in labour productivity which can be measured at the level of individuals and collective organisations (firms, industries, regions, nations).

In the context of dealing with financial markets in the production of investment returns, Clark and Monk, (2013a) propose a useful conceptual distinction about talent that differentiates between skills and expertise. According to their proposition, talented investment professionals' expertise pertains to their "knowledge and understanding of how financial markets function (in general) and how markets respond to endogenous and exogenous shocks" (Clark, 2015). Skills on the other hand refers to the "technical abilities" that an investment professional brings to an investment process. These for instance include financial modelling and forecasting. Both skills and expertise increase with experience over time. The resulting specialisation, which is a product of nurtured skills and expertise, is highly sought after by financial institutions. Highly specialised talent is at the heart of the war for talent and a significant part of the battle is won by offering hefty compensation packages to attract and retain the most talented investment professionals.

Since the uneven spatial distribution of talented workers can be explained by the uneven spatial distribution of wages, one can argue that distance from established labour pools could be bridged by creating incentives for workers to consider atypical locations. As argued previously, competition for talent between firms within and

across geographical boundaries and industries, is indeed largely shaped by compensation. In this basic model, workers' mobility is understood as a function of wages in given locations at a given time. Following this logic, an investment firm located in Denver, Colorado that wants to attract and retain Wall Street talent could, in theory, do so by matching Wall Street wages.

There are at least two significant issues with this line of thinking. The first one has to do with the fact that unless enough investment firms burgeon in Denver Colorado for it to become an agglomeration of significant scale, none of the marginal productivity benefits that occur in Manhattan will allow Denver's firms to pay Manhattan wages. Now of course, agglomeration effects observed in major financial centres present different utility to firms of different sizes in different lines of business. For instance, the benefits of co-location are expected to be significantly different for a specialised manager offering an index tracker on large-caps U.S. equities, to those experienced by an active manager of small & mid-cap European equities portfolio, and a hedge fund offering a global macro event driven strategy. In any event and as argued previously, given the status of asset owners as buy-side financial institutions, they are unlikely to benefit from the same agglomeration spillovers than sell-side financial institutions.

The second issue pertains specifically to asset owners that owe their existence to a political mandate and must respond to public expectations regarding sound budgetary management. In public financial institutions such as pension funds and SWF, matching Wall Street's compensation is unlikely to be achieved by means of economic justification. Here compensation is not determined by market dynamics but rather tied to taxpayers' views on the value of public service and their subjective ideas

of fairness with regards to civil servants' compensation. In national and local contexts such as the United States where government institutions tend to be perceived in a rather negative light, this can prove problematic. Outsourcing, which incidentally displaces the investment management functions of a local government agency towards clustered private sector investment firms, becomes a convenient solution to a compensation issue rather than a locational one. The problem is not so much about being in the market (geography) than it is about paying market compensation (political-economy).

This is an acute issue for agencies that rely on talent from the financial sector. Indeed, the gap between financial sector workers and the rest of the population is notable and well documented. Furthermore, since the GFC and the economic downturn that ensued, finance workers hefty compensation have been the target of heavy criticism from scholars and the media. Wójcik (2012) found that over the 30 years leading to the GFC finance workers benefited from an 81 percent increase in wages while wages in other sectors have remained unchanged. According to Philippon and Reshef (2012) 15 to 25 percent of wages inequalities in the U.S. observed since 1980 can be attributed to wage growth within the financial sector. While it is beyond the scope of this research to discuss the origins and implications of these inequalities, it should be noted that these dynamics have put public sector agencies at a serious disadvantage. As Clark and Monk (2014a) stated: "It is widely recognised that salaries and benefits of Public Employees Retirement Systems (PERS) are not competitive with those found in the marketplace for similar types of jobs".

MacIntosh and Scheibelhut (2012) global study of large pension institutions quantified marked wage differences across geographies showing that Canadian funds pay by far the highest compensation to their investment staff. With an average annual salary of 536'000 USD they are followed by Europe with 246'000 USD, the United States with 148'000 USD and Australia and New Zealand with 139'000 USD. The highly competitive compensation policies offered amongst Canadian funds largely explains their global recognition as champions of insourcing. While the Canadian model offers an interesting case of public agencies governed by private sector standards, it has been argued that matching private sector may not be a panacea. As suggested by Bachher and Monk (2012) public funds should avoid trying to mimic industry practices that incentivise short-term intensity of efforts and equate high reward systems with high performance and instead be cognisant of their institutional particularities and target employees accordingly. This differentiation proposition is evaluated and expanded in chapter 5 using a comparative analysis between private sector's star-performers and frontier talents.

Final remarks

"It is sometimes suggested that video conferencing, online labor markets, and other uses of communications technology can mitigate the need for talent flows and physical proximity. The evidence thus far is to the contrary, instead emphasizing how the new tools complement global movements instead of substituting for them." (Kerr *et al.*, 2016)

This view is at the heart of ongoing debates on the topic of insourcing. At one end of the spectrum, technological progresses have created significant opportunities to

remotely access financial markets information and place trades on a global scale from any location plugged into virtual financial networks. On the other hand, the intensification of agglomeration in the financial industry has produced a hyper concentration of human capital in key urban spaces. As argued, superior risk-adjusted investment returns are produced at the nexus of talent and efficient market information. No matter how timely and transparent, remote information has little value in talent deserts. This poses significant challenges for frontier finance to become more than a grassroots movement and replace the current logic of agglomeration in the global production of investments returns.

There are numerous spatial layers making-up the complexity of producing large scale investment returns from a given location towards global financial markets. As alluded earlier, co-location for intuitional investors may arguably be less important than suggested in accounts pertaining to sell-side financial institutions. Indeed, given the nature of their activities institutional investors such as public pension funds and SWF are likely to be marginalised in processes of knowledge production and transmission regardless of physical proximity. Additionally, given the territorial expansion of global financial markets, one can argue that physical proximity with economic and financial hubs is becoming increasingly complex to achieve; to be sure, co-location would require the operation of a global network of satellite offices.

These preliminary remarks suggest that distance is now a fundamental part of the investment world. Technology has a central role to play in bridging that distance. On one hand this makes the geographical location of frontier financial institutions less important and would suggest that insourcing, from the local to the global, may

become increasingly adopted by institutional investors regardless of their location. On the other hand, the human capital intensity of sophisticated investment processes counterbalances technological promises. Indeed, the enduring forces of agglomeration shaping the investment management talent landscape are likely to put a strain on the implementation of insourcing and force distant institutions to continue to outsource their investment functions.

Addressing theoretical discussions in economic geography, this thesis gives weight to the enduring relevance and importance of geography in explaining the current landscape of financial service provision. In particular, they point to the unprecedented contemporary tensions between the spatial agglomeration of human capital and the decentralisation opportunities offered by technological advancements. Overall, it shows that substantive differences between asset classes have shaped different maps of global investments. To begin with, the thesis proposes an empirical examination of the in- and outsourcing strategies of state and local pension plans in the United States. Given the spatial dispersion of these institutions, traditionally located in their respective administrative capital, and the national presence of four major financial agglomerations, it provides a unique examination of the contemporary geography of institutional asset management. The rest of the thesis flows from this first interrogation and address separate research questions on the issue of co-location, asset allocation and talent. These themes are addressed separately in chapter 4 and 5 and comprehensively reviewed in chapter 6.

3. RESCALING OF AMERICAN PUBLIC PENSION FINANCE: ARE STATE AND LOCAL PLANS RUNNING AWAY FROM WALL STREET?

ABSTRACT. The present chapter contributes to the growing body of literature in financial geography on institutional investors' asset management practices. Demonstrating its variegated nature, it insists on the intrinsic importance played by form and function in shaping institutional behaviour. Through empirical evidences derived from a unique proprietary dataset on U.S. state and local pension plans' internal capabilities it addresses recent speculations regarding an on-going rescaling of asset management activities away from the private sector and traditional centres of finance. The primary intention of the chapter is to assess the relational autonomy of state and local plans *via-à-vis* private sector financial services over the 2006-2012 period and formulate a set of hypothesis on political, economic and geographical determinants. Generally, while I find that public pension institutions do invest "at-a-distance" (Clark and Monk, 2013), I question the idea of a generalised insourcing trend amongst state and local plans and demonstrate that the localisation of investment decisions still comes in many shapes and sizes. Looking more closely at individual cases, the data indicate that physical distance from major financial agglomerations may in fact entice independence while proximity nurtures reliance on an industry that may be taking advantage of a vulnerable segment of its clientele. While the majority of institutions have showed poor adaptiveness to rapidly changing market environments, a minority of plans have responded dynamically to the GFC by converging towards a hybrid model of in- and outsourcing.

3.1 Introduction

There is a long-standing tradition of comparing the design and functionalism of state-governed institutions to their private sector counterparts (see Coronado, Engen and Knight, 2003; Collins, 2003). Interestingly though, the connections that link private and public asset management institutions have been mostly ignored by dedicated scholarship on institutional change. This is particularly interesting considering the importance these dynamics play in the formulation of policies to attend to the long-standing funding crisis faced by public pension plans in the United States. Indeed, while the pension economics literature has rapidly expanded in recent years, it has given a limited amount of attention to privatisation and overlooked the potential benefits insourcing could have in investing the sizeable pension capital accumulated by state and local governments.

In particular, one might note the considerable vacuum of systematic empirical research on the actual ties that exist between beneficiary public pension institutions and private sector financial services providers. Some authors have partially attended to this gap by providing evidences of grassroots manifestations of a paradigm shift in the logic governing these interactions. Hebb and Sharma's (2013) research on local targeted investments provided an interesting example of the recent traction to a change in the territorial logic of institutional investment operating at the periphery of traditional centres of finance. More recently, Dixon and Monk (2014) identified manifestations of an on-going process of relocalisation and internalisation of asset management activities amongst large institutional investors. The authors argued that sizable financial institutions such as pension funds and SWFs, which have grown

considerably in number and size over the last decade, have recently come to build their internal capabilities. By regaining control over their assets, these institutions are looking to bypass private sector asset managers obeying to the traditional clustering logic of IFCs. The authors aptly coined this progressive reconfiguration frontier finance. While the authors offered compelling arguments to increase the “relational autonomy” (Jones, 2014) of public financial institutions, the lack of systematic evidences of their study somewhat weakens the substance of their conclusions. Nonetheless, the frontier finance model holds important theoretical and practical promises.

Interestingly, professional medias have punctually reported on this contemporary trend marking a change in public-private relationships. A significant example was CalPERS’s decision to divest their hedge funds commitments emphasising concerns over their complex and expensive nature. Although the dollar amount of divestment (4bn USD) was marginal, it still caught the attention of major financial news providers such as Forbes, CNBC, the Wall Street Journal and Bloomberg. All recognised a symbolic change in commonly accepted industry norms and standards motivated by large public institutional investors rethinking the products and services they purchase from private contractors. Given the prevailing “normative isomorphism” (DiMaggio and Powell, 1983) observed in the industry, this may create a non-trivial precedent. Assuming other sizable institutional investors follow in their footsteps, the resulting reallocation of assets could cause significant disruptions in financial capital flows.

State and local pension plans manage gargantuan amounts of money and are scattered across the country. A trend towards the reallocation of large institutional investors’

assets towards localised internal management, would trigger a significant spatial reconfiguration of the pension asset management industry away from clusters of international finance towards smaller local economies. Such a trend would represent a considerable loss for financial services contractors located in and beyond Wall Street. According to Hooke and Walters (2013), in 2012 state and local pension plans collectively paid over 9bn USD in investment fees to private contractors. As the level of private sector revenues is a function of institutional investors' strategic decision to "make-or-buy" (Baker and Hubbard, 2003) their investment processes, one can only expect the industry to be wary of change and incentivised to adapt the products and services they offer to institutional investors. In that sense, even small-scale steps taken by respected and visible organisations such as CalPERS, may indirectly benefit other asset owners as contractors realign their services to avoid losing clients.

The possibility of a change in the logic of institutional investors' assets management practices has opened whole new avenues for research in at least three academic disciplines. First, it provides a topical organisational field for researchers interested in changing landscapes in the economic activity generated by the financial industry. Secondly, it constitutes a most relevant case study for researchers sensitive to questions of institutional change and particularly for those interested in empirical research applying recent conceptualisations in relational economic geography. Thirdly, it opens exciting areas of research for scholars interested in pension economics, particularly for those exploring alternative solutions to attend the looming pension crisis, as insourcing could be a way to significantly improve investment efficiency. To this day there are no comprehensive studies of how state and local plans allocate their assets between in- and outsourcing. The analysis and discussion that

follows addresses this gap. By putting Dixon and Monk's (2014) frontier finance thesis to the test of positive science, this chapter assesses the rescaling of investment services provision of state and local pension providers away from private sector institutions clustered in IFCs towards the public sector located in peripheral local economies.

To do so the chapter is organised as follows: the first section proposes to discuss the concept of rescaling in relation to the local political underpinnings of public pension funds and their global investment return objectives. It then reviews existing scholarship on in-house asset management to identify threats and opportunities associated with building-up state and local pension plans' internal capabilities. The second half of the chapter presents an empirical analysis of an original dataset on state and local plans' internal capabilities over the period 2006-2012. The analysis proposes to assess the rescaling of public pensions' investment services provision through time and space. Specifically, it reveals the extent of state and local plans' reliance on private sector financial services and formulates a set of hypotheses on the determinants of such practices. The chapter concludes by proposing a typology of state and local plans' internal capabilities emphasising the limits of prevalent models and discusses potential future developments.

3.2 Rescaling: from local politics to global financial markets

It is not within the scope of this chapter to discuss the subtle theoretical foundations behind the concept of rescaling but it is used here as a conceptual umbrella to describe the process of increasing relational autonomy of public pension institutions vis-à-vis

private sector contractors. Rescaling is thought to operate on two different levels. The first one is organizational and is interested in transformations in the relations between public pension plans and private sector asset managers. This occurs when pension plans insource part of their investment processes and consequently terminate external management contracts. It refers to what Brenner (2009) calls a “process of institutional reorganization”. The second is geographical. It captures how these relational transformations trigger a territorial shift of public pension management activities away from large centres of finance, around which private sector financial institutions are clustered, towards distant and fragmented markets where the majority of state and local plans are located. It describes a spatial reconfiguration associated with moving outsourced assets toward local internal capabilities. Rescaling reflects what Dixon and Monk (2014) called “organizational cum geographical change” in frontier finance.

In order to study these dynamics empirically, it is useful to first describe some of the mechanics underpinning the management and administration of state and local pension plans. Contrary to private DB pension plans, public DB pension plans are not subject to federal regulation. Government employees’ pensions’ assets collection, management and distribution is the responsibility of individual states. This model reflects a “bygone era of U.S. federalism” (Clark and Monk, 2014). By convention, state sponsors devolve the management of contributions and the administration of benefits according to governance structures that differ substantially across states and municipalities (Andonov, Hochberg and Rauh, 2016). Reflecting the importance placed on political proximity, pension plans’ headquarters are often co-located with their sponsors. Since part of their mandate is to invest millions, if not billions, of USD

in globally diversified financial instruments, prioritising political rather than capital market proximity may constrain investment processes. For instance, one may wonder if Denver is the best strategic city for the Public Employees' Retirement Association of Colorado to manage its 35bn USD pension assets.

Besides issues pertaining to the distance between public pension plans and financial agglomerations, studies have also shown significant political interferences in the management of public pension assets. For instance, Munnell, Aubry and Cafarelli (2015), have shown that sponsors often under-contribute to reduce their public deficits. Ex-officio pension board members, who are appointed by elected officials, were also shown to allocate assets to external contractors in exchange for political donations (Andonov, Hochberg and Rauh, 2016). Given the high degree of localism in the governance of public pensions, a variety of organisational models and economic inefficiencies are to be expected. In particular, because of their heavy political underpinnings, neoclassical theories of the firm as well as functionalist approaches are deemed inappropriate to understand their specific response to the make-or-buy dilemma. This has been observed in other non-majoritarian institutions with an asset management mission and is a direct consequence of their political foundation².

In their conceptual article on the organisation of financial systems, Merton and Bodie (2005) refer to the “science of finance” to describe the rules underpinning neoclassical

² See for instance the case of the Norwegian SWF where procedural legitimacy takes priority on functional performance (Clark and Monk, 2010).

finance. Modern Portfolio Theory and the Efficient Market Hypothesis are the two dominant principles sustaining common practices in institutional investment management. It follows that the organisational arrangements of public pension plans is at least in part dictated by the rules regulating their investment processes (Clark and Monk, 2011). This expectation conforms with DiMaggio and Powell (1983) on the homogenization of “organizational forms and practices” due to a process of “professionalization” and “mimetic” behaviours. Indeed, finance professionals evolve in highly normative contexts that nurture standardized educational backgrounds and professional networks. Additionally, the uncertainty inherent to financial markets tends to reinforce “mimetic” behaviours. As the authors put it: “organizations tend to model themselves after similar organizations in the field that they perceive to be more legitimate or successful”. While the prevalence of neoclassical finance and mimetic behaviours lead to expectations of isomorphic output as expressed by asset allocation, the political foundations of state and local plans lead to predict heterogeneity in the means to construct investment solutions.

Experts in the field have agreed that organisational innovation has been particularly slow if not completely absent amongst institutional investors including pension funds over the last decades (Clark and Monk, 2011, 2013). This stands in sharp contrast to the marked transformation of financial markets subjected to rapid technological change and an ever-increasing sophistication of investment products. In fact, Merton and Bodie (2005) argue that progresses made in product design can be seen as a direct response from financial institutions to overcome their inability to adapt rapidly enough to changing market environments. This observation of organisational apathy is consistent with the notion of “path dependency” (North, 1991; Martin, 2000) that

views organisational change as a complex and constrained process that leads organisations to fall victim to various degrees of inertia, particularly so in periods of economic, political and social stability.

However, there is still room-for-manoevre for organisational change. Particularly following exogenous shocks including market downturns, economic crisis, political disruption, regulatory changes and other expressions of “social forces” that have the power to “disrupt established routines and habits” (Jessop, 2001). The GFC was an event of such magnitude that it may have acted as a catalyst to disrupt conventional practices. In particular and as argued by Dixon and Monk (2014), it may have encouraged institutional investors such as public pension plans to switch from managing external contracts (outsourcing) to a model of direct asset manager (insourcing). This hypothesis is particularly relevant considering the impact the GFC had on the investment returns of state and local plans, already entrenched into a longstanding history of funding crisis before the markets collapsed in 2008 (Munnell, Aubry and Quinby, 2011; Munnell *et al.*, 2013).

The GFC has left a blatant disenchantment about the added-value of Wall Street’s products and services and may have enticed a change in the “governing logic” of public pension asset management (Keating, 2014). While the trend in asset allocation remains to look for investment opportunities on global financial markets, the possibility to cut investment expenses by disengaging with external contractors and managing these investments internally has most recently come to specialist medias’ as well as academics’ attention. While several accounts provide compelling arguments to bypass private contractors, there remains a paucity of systematic evidences of the

current state of the market for public pension asset management. The empirical section of this chapter addresses this gap. To put the following quantitative analysis into perspective, I hereafter first review key literature on the “make-or-buy” dilemma in global investment management.

3.3 The make-or-buy dilemma

The strategic decision to use internal resources versus external contractors to produce a given output has generated a vast amount of scholarship in several fields; most notably in economics, management studies and economic geography. The intention here is to review the rationales that underpin the formulation and implementation of practical solutions to the make-or-buy dilemma across these academic disciplines. This section strives to bring together interdisciplinary perspectives while discussing their limits in the specific context of public pension asset management. It brings further elements of reflection on the differences and commonalities of the organisational field of public pension institutions in comparison to private sector financial institutions. This literature review allows to formulate ex-ante hypothesis further discussed in light of the empirical findings presented in the penultimate section of the chapter.

Economic geographers insist on the fact that institutions are deeply spatially conscious organisms. Echoing the work of Teece, Pisano and Shuen (1997), Clark (2000) has emphasized the fundamental aspect location plays in the context of institutional asset management, stressing that economies of scale and agglomeration

economies do not adequately explain the differences in the choice of intensive versus extensive delegation and neither do they capture the decision to replace asset managers with competitors. Other authors interested in locational issues have also expressed their scepticism over the ability of pension providers to effectively manage their assets locally when situated afar from major financial centres (Dixon and Monk, 2014; Clark, 2000). In particular, they suggest that distant asset owners have to rely heavily on private sector services to compensate for their inability to build internal resources due to their remote geographical location.

Cook *et al.* (2007) study of the City of London concurs obliquely by reporting on the premium financiers' place on maintaining physical proximity with leading financial centres. One key feature of being in the market place is that it enables access to strategic information. Indeed, whereas information providers have "made internal portfolio investment-at-a-distance possible" (Clark and Monk, 2013), distant asset owners may be at a disadvantage as they miss "non-commoditised" information that circulates physically, as opposed to digitally, in the likes of the corridors and elevators of Wall-Street buildings. "To be able to reap these benefits in full almost invariably requires co-location, rather than occasional interludes of face-to-face contact" (Storper and Venables, 2004). As public pension plans seldom operate satellite offices in IFCs, they can only reap the benefits of co-location through intermediation via private sector institutions and agents who are themselves located within large centres of global finance.

It is however interesting to note that the arguments in favour of co-location tend to value proximity from a commercial perspective (proximity to clients) rather than an

operational one (proximity to contractors). This is a key distinction since the functional performance of asset management institutions is evaluated differently in the private and the public sector. Private institutions competitiveness is estimated based on discounted cash-flows available to shareholders; such cash-flows can be generated through the acquisition of clients' assets as well as investment returns; while they are interdependent, there can be times of decoupling when the former compensates the losses on the latter; this results in a situation where asset managers can still make a profit when their clients are experiencing net losses. State and local plans' performance on the other hand is only evaluated on their ability to generate risk-adjusted returns. While face-to-face interactions may be key for private financial institutions in their relentless competition for capital acquisition, state and local plans have captive clients and are end-users of financial services³. This fundamental distinction calls for caution when using private sector operating models as blueprints for public asset management institutions.

Issues of co-location also reflect a somewhat out-dated model of Western domination in global financial markets. Indeed, for the most part of the 20th century institutional investors in the West had the world's largest centres of finance at their doorstep, in London and New York. The 21st century, however, is characterised by "spatially extensive financial markets" (Clark and Monk, 2015) and has seen the rise of financial centres such as Hong Kong, Singapore and Tokyo. Conceptually it follows that co-location is somewhat poorly adapted to this new geography of finance as institutional

³ It may be argued that pension plans are not strictly end-users as they perform ancillary sell-side operations such as securities lending.

investors no longer face the dichotomous choice to “make-or-buy” Wall Street’s services but face complex issues of adaptiveness to markets of foreign history, culture, politics, norms and practices. With this territorial expansion of the financial world, the complexity of replicating the industry’s tasks and functions internally as well as managing multiple and distant external contractors has grown exponentially.

Although the build-up of internal capabilities may offer compelling advantages for improved risk monitoring and cost savings, one should acknowledge the agency issues inherent to public sector institutions and public pension management institutions in particular. Coronado, Engen and Knight (2003) note that because plan participants do not bear market risks in DB plans, they are also less inclined to monitor performance making public pension providers more vulnerable to political interferences. Lakonishok, Shleifer and Vishny (1992) also stress that outsourcing can provide a convenient scapegoat as elected and appointed officials can transfer the responsibility of poor investment returns onto external contractors (see also Jenkinson, Jones and Martinez, 2016). These are important observations tied to the political nature of state and local plans which are expected to distort the organisational arrangements predicted by neoclassical models that assume rational behaviour.

The financial industry pays a substantial premium to access high-end labour markets. Wójcik (2012) research on the structure and evolution of U.S. employment in the financial sector shows that while salaries in non-financial sectors remained unchanged over the 30 years leading to 2008, salaries of finance workers increased by 81 percent. While public sector workers generally receive competitive employment packages, public financial institutions have not been able to match such skyrocketing

compensation. This holds particularly true in the United States which, in comparison to Canada, Europe, Australia and New Zealand, offers the lowest public sector compensation levels for financiers (MacIntosh and Scheibelhut, 2012). Because state and local pension plans are unlikely to ever match private sector compensations, the challenge lies in their ability to overcome the potential “quality-gap” associated with discounted compensation (Munnell, Aubry and Sanzenbacher, 2014). As suggested by Bachher and Monk (2012), to avoid this pitfall public pension plans should base their recruitment strategy on a distinctive value proposition and may be more successful by looking for “a different type of employee altogether” instead of confronting the market directly.

Lakonishok, Shleifer and Vishny (1992) critical study of the money management industry provided strong evidences of the incapacity of active managers to consistently add value relative to a market index: “Much of the organization of the industry seems to be driven by its need to provide sponsors with good excuses for poor performance, clear stories about portfolio strategies, and other services that are related only vaguely to performance”. With that commentary in mind, one can expect the high rewards on financial managers’ talent to be attributed to a more extensive palette of skills than their strict ability to beat the market. Certain qualities such as interpersonal skills, financial literacy and pedagogy as well as social networks and existing client relationships may help explain more accurately “star performers” (Clark and Monk, 2014) remuneration levels as they enable financial institutions to not only generate superior risk-adjusted returns but also play an essential role in attracting and retaining capital. As they do not compete to attract pension

participants, it is worth noting that these broader marketing abilities are of little value to a public pension plan.

It is really important to emphasise that externalisation does not provide a workaround the issue of matching private sector remuneration; as clients of the financial industry, state and local plans are in fact paying in full the costs associated with private sector salary premium, only indirectly through investment expenses rather than salary expenses. This may be preferred as investment expenses are more likely to fall below the political radar than public employee compensation packages. However, there are evidences that indicate that outsourcing may in fact increase rather than decrease costs. A recent study looked closely at the fees paid by state and local plans to Wall Street investment firms for managing their assets. The study showed that the state pension plans paying the largest fees were also consistently underperforming their peers (Hooke and Walters, 2013). Considering the widely-recognised inability of individual managers to consistently beat the market over time, these findings point to the perhaps trivial yet overlooked idea that an average in-house performance is better than an average outsourced performance net of Wall Street's fees. This begs the question as to why institutional investors such as state and local plans keep paying money for services known to be "fruitless" (Jenkinson, Jones and Martinez, 2016).

A global study including 19 large pension funds located across America, Europe and Canada showed that on average a 10 percent increase in internal capabilities equated a 36 basis points increase in net value creation (MacIntosh and Scheibelhut, 2012). The study demonstrated a positive relationship between AUM and internal capabilities. While the management of complex assets such as private equity is more likely to be

internalised only by larger players (25bn USD and above), less complex assets such as fixed income were likely to be managed internally regardless of the size of AUM. However, one should note that the asset allocation of public pension plans tends to be largely homogeneous; less complex traditional assets (long exposure to domestic equity and fixed income) usually account for the majority of plans' portfolios regardless of their size. This means that theoretically, since large and small players alike invest a majority of their assets in low complexity assets, a majority of public pension assets could be managed in-house.

3.4 Methods and data

The following analysis presents empirical evidences contributing to on-going debates in financial geography about the importance of co-location for asset management institutions; the value of "being there" as Gertler (2003) puts it. In particular, it addresses the lack of evidences on state and local pension plans' use of private sector financial services. The following analysis is based on quantitative observations of state and local plans' internal capabilities through time and space. Different levels of granularity serve the ambition to make observations and recommendations that have policy implications at a local level without losing broader regional and national perspectives that can be tied to larger debates in financial geography.

The first section of the analysis focuses on demonstrating the spatially variegated nature of the public pension crisis as well as revealing the fragmented geography of U.S. state and local plans' assets. The second section focuses on a multi-dimensional

analysis of state and local plans' internal capabilities. This part of the enquiry critically assesses the extent of institutional and geographical rescaling of public pension finance away from traditional centres of finance. It puts Dixon and Monk's (2014) frontier finance thesis to the test of positive science. A selected number of cases are discussed in order to clarify the relative importance of co-location for institutional investors. This empirical section concludes with a discussion on the home bias in the internal expertise of a sub-sample of organisations.

One should note that the shortage of systematic academic research on the subject is at least in part due to the lack of publicly available comprehensive databases on U.S. public pension plans. Among existing resources, the United States Census Bureau provides an annual review of nearly 4'000 state and local plans. While the number of variables on offer is large, observations are limited to aggregate state and local levels, which prevents plan level analysis. The Centre for Retirement Research at Boston College (CRRBC) provides a database covering a smaller sample of 150 individual organisations allowing users to make specific queries on a large set of variables at plan level. While the CRRBC dataset provides a wide array of readily available and comparable metrics, it does not cover strategic asset management data such as asset allocation, operational and management costs and does not include any variables regarding the proportion of assets that are managed internally by individual plans.

Pensions and Investments (P&I), a U.S. based news and research provider, offered a pivotal support to the present research by giving access to their proprietary pension fund database. The P&I database provides systematic cross-sectional time series of state and local plans' basic information, membership, asset allocation, income

statement and funding status. While this information can be assembled from other public sources, P&I also provides plan level data on the nominal assets managed internally by pension plans with further breakdown at an asset class level. This unique dataset provides an opportunity to contribute original detailed and aggregated insights on public pensions' asset management practices. This brings a timely empirical perspective on recent assumptions about an insourcing trend amongst institutional investors. Finally, it provides a basis for a more grounded discussion on its implications for public pensions, private sector asset managers, global financial markets, and academic research.

The initial sample offered by P&I contains data on 182 state and local pension plans for the period 2006 to 2012. All have AUM amounting to at least 1bn USD. This threshold was deliberately placed comparatively low in order to avoid the systematic exclusion of plans elsewhere considered by convention as small players (see for instance Clark, 2004 and Dixon and Monk, 2014). All frozen and closed plans as of 2012 were removed from the sample. When internal capabilities data were consistently missing over the observed period, it was assumed that funds had not reported the information (rather than had no internally managed assets); those plans were excluded from the sample. Plans that missed reporting internal capabilities either at the beginning or the end of the observed period and those which have missed more than 1 year of reporting were also removed from the sample. For plans that missed only one year of reporting, the missing data were estimated by taking the average value of the two closest observations. The final sample comprises 31 state and local plans.

The present study focuses on yearly observations during the period 2006-2012. This 7 years period is the longest time series available at the time of the research. It allows longitudinal analysis of the evolution of the relationship between state and local plans and the financial industry from the early stages of the GFC. Starting with the burst of the U.S. real-estate bubble, it covers the global market collapse that followed the bankruptcy of Lehman Brothers in late 2008, the European debt crisis, all the way to the gradual normalisation of economic and financial market activity that ensued those dramatic events.

3.5 Frontier assets

Figure 1 provides a base to rethink about where public pensions' capital originates. Unsurprisingly, the largest states in terms of population size also manage the largest public DB pension plans in the country. California, Texas, Wisconsin, Illinois, Florida, North Carolina, Ohio, Pennsylvania and New York makeup the first quartile in terms of total assets. The rational is straightforward: a larger population equates to a larger public sector workforce (exception made for of a handful of states such as New Mexico and Nevada). This map shows something of importance: not only vast amounts but the majority of state and local plans' financial capital lies outside the country's IFCs; this is fundamental in understanding the make-or-buy dilemma from public pension plans' perspective since it means that the majority of plans face the dichotomous choice to either outsource the management of their pension assets to distant private sector institutions or manage them at-a-distance through insourcing.

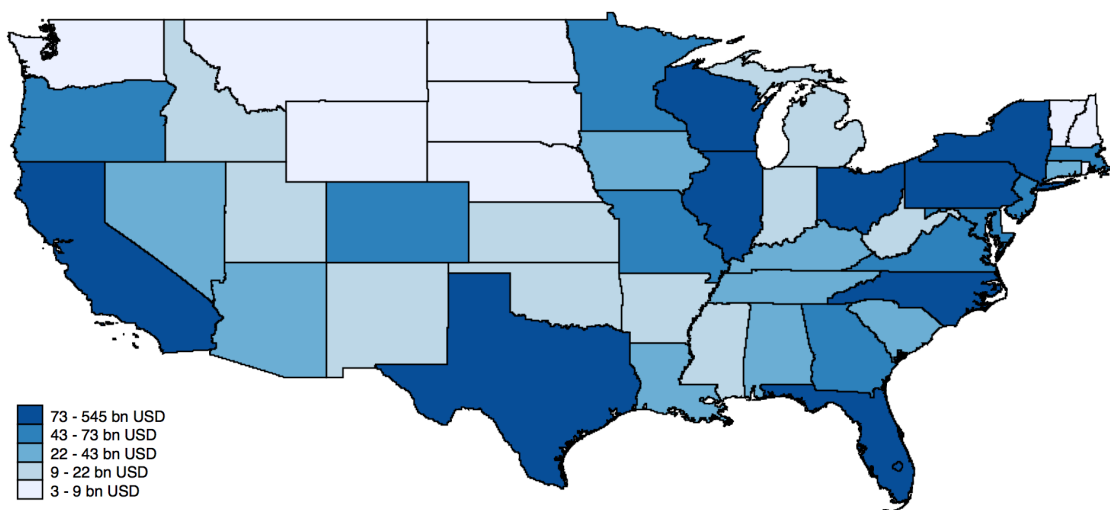


Figure 1. *Total assets of state and local plans, aggregated by state, 2012.*

Source: Own research. Data from P&I proprietary database.

Looking at a city level, out of the 2.8tn USD of public pension assets (total assets for 167 state and local pension plans observed in 2012⁴), less than 10 percent originated from the country's largest financial centres. New York City was home to 127bn, Boston 58bn, Chicago 36bn, and San Francisco 16bn USD. This observation goes a long way to show that there is tremendous financial power, of over 2.5tn USD, tied to beneficiaries located outside of the country's leading centres of finance. To put things into perspective, Blackrock, the world's largest asset manager headquartered in New York, managed 3.8tn USD in 2012.

⁴ The U.S. Census Bureau recorded 3.05tn USD for the same year for the entire population of U.S. state and local plans

With these figures in mind, it is interesting to note that public pensions are nonetheless often portrayed as fragile institutions. This recurring rhetoric of vulnerability is a product of their fragmented and predominantly non-collaborative arrangements, but also because, as creatures of state and local governments, they face competing claims over limited public resources. I would argue that this particular organisational setting is damaging their functionalism as fragmentation diminishes the potential leverage associated with the large aggregate financial capital managed by these institutions. Creating a space for collaborative action would be particularly relevant to small and mid-size plans to gain the critical mass necessary to equilibrate the balance of power between these institutions and the financial industry.

While we know where public pensions' assets originate, we still know very little about how and where they flow. In practice the origin of financial capital rarely equates the location of its management as local capital tends to flow towards larger aggregated pools of money in a mercury-like fashion (Clark, 2005); in the context of Northern American as well as global finance, the consensual view is that Wall Street holds one of the most important attraction power for money to be managed. However, in a time of looming pension crisis, insourcing may play an important role in improving the funding of public plans. Interestingly, to this day where and how the 2.5tn USD of peripheral public pension assets are managed remains only answered by way of unsubstantiated inferences about broad industry norms. In order to support the practice of insourcing, there is a need to first have a clearer picture of how public pension institutions are actually organised to manage their assets.

As reported in Figure 2, the distribution of internal capabilities amongst a sample of 31 plans is positively skewed; the mass is largely concentrated towards lower levels of internal capabilities. On average, state and local pension plans rely predominantly on external managers. The large standard deviation of 25 percent indicates that there are however significant differences between the models of investment service provision individual organisations decide to embrace. I will come back later with a more detailed analysis on this finding. As the presumption that externalisation remains the preferred model is verified, I now turn to assess how this observation holds through space and time. This approach brings light on Dixon and Monk's (2014) proposition on possible on-going alterations in the market for asset management services dedicated to public sector asset owners.

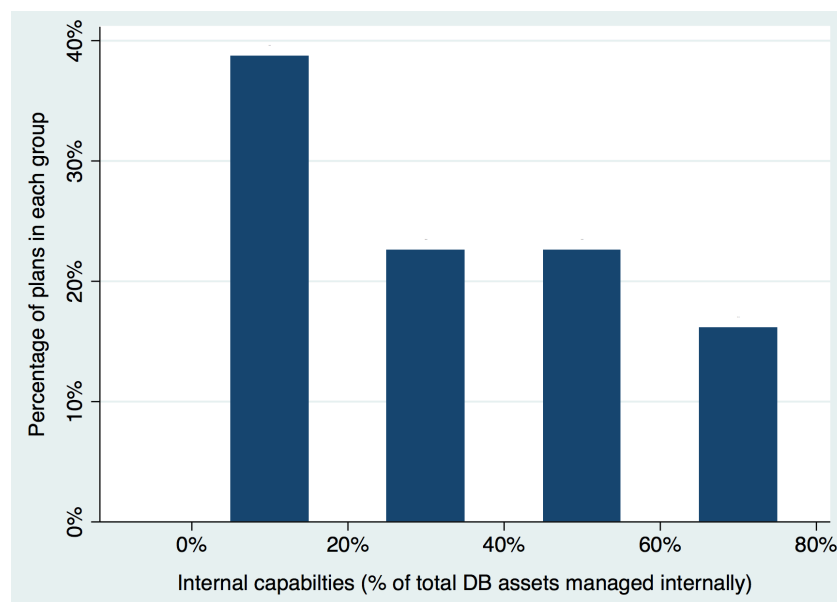


Figure 2. *Distribution of state and local pension plans by internal capabilities, 2012.*

Source: Own research. Data from P&I proprietary database.

The 31 observations available for the year 2012 allow to draw a state level geographical representation of the internal capabilities of state and local plans. This is presented in Figure 3. Exception made for New York and New Jersey, the key finding is that states

with the largest average internal capabilities are fairly distant from IFCs and host inconsequential financial agglomerations. South Dakota, and Colorado manage on average 61 percent of their assets internally while the states of Wisconsin, Florida and Ohio follow with internal capabilities exceeding 40 percent, above the national average set at 32 percent. “Investing-at-a-distance” (Clark and Monk, 2013) is a solution embraced by several organisations. This proves empirically the existence of substantial financial activities carried out at and beyond the frontier of finance, outside traditionally recognised financial centres and corporate circuits of capital. The findings further imply that physical distance from large centres of finance may not present an insurmountable challenge for dislocated asset owners willing to increase their autonomy.

Figure 3. *Average internal capabilities, by state, 2012.*

Although a more complete dataset would be desirable to improve the validity of the inferences made here, the data also indicate that neighbouring states tend to embrace

similar structures. California and Arizona both have relatively low internal capabilities in the 16 to 26 percent bracket, Louisiana and Mississippi both have low internal capabilities below 16 percent while North Carolina and Virginia are close to the national average falling in the 26 to 37 percent bracket. This observation concurs with Munnell (2012) finding suggesting that there may be neighbourhood effects that influence the management of organisations located in adjacent states. This is also found to be true at a city level in several instances such as Albany, Baton Rouge and Frankfort. This behavioural tendency to follow one's neighbour also further concurs with Clark and Monk (2014) who found such similarities in the form and substance of Investment Management Agreements (IMAs) of co-located pension plans.

3.6 Rescaling of state and local plans' asset management

Now that the geography of state and local public pensions' internal capabilities has been laid-out, the next step is to search for temporal patterns. In reference to the literature on institutional change discussed in the second section, one would expect a certain degree of inertia, as internal capabilities are dependent upon strategic decisions deemed complex to explore and implement. Behaviour at an institutional level is also expected to be somewhat erratic because of the political processes public pensions are subjected to. Hidden agendas may interfere with optimal strategic management decisions. For instance, building strong ties with the financial industry through the allocation of public contracts could serve larger electoral interests while decreasing the costs of labour allocated to public sector's budget. On the other hand, building internal capabilities could lead to increase local public spending and create jobs locally. One can expect such politically sensitive issues to interfere with a rational

evaluation concerned with functionalism that balances expenses with returns on investments.

Research on financial institutions tends to put a strong emphasis on the amount of capital managed by individual structures; as such, AUM are used as a measure of success as it reflects the ability of an organisation to attract and retain capital. Furthermore, AUM also offer a proxy for size, particularly in the present case as the allocation of assets is expected to be fairly homogenous across organisations⁵; In order to assess the role of institutional size in the formulation and implementation of different make-or-buy models, the sample is divided into four categories. Figure 4 shows that organisations with over 20bn USD of assets have on average embraced a *hybrid* model that splits the allocation of their assets fairly equally between internal and external management; within that group, low internal capabilities are just below 40 percent and highs just above 60 percent. The models embraced by mid-range organisations (20 to 100bn USD) have remained generally stable over the period 2006-2012. On the other hand, the smaller intuitions (less than 20bn USD) and the largest ones (over 100bn USD) exhibited a much clearer pattern over the same period. These two distinct patterns of strategic management of internal capabilities allow making a first conceptual divide between *dynamic* and *static* organisations.

⁵ Comparing financial institutions on the basis of AUM can be problematic when they are invested in significantly dissimilar ways. For instance, passive management or index investing, is a lot less human capital intensive than active management and the revenues are substantially lower; same distinctions can be made between assets classes and financial products. 1bn USD of AUM invested passively in AAA corporate bonds indexes will require a significantly smaller structure and yield substantially less revenues than a 1bn USD actively managed mutual fund in emerging market equities.

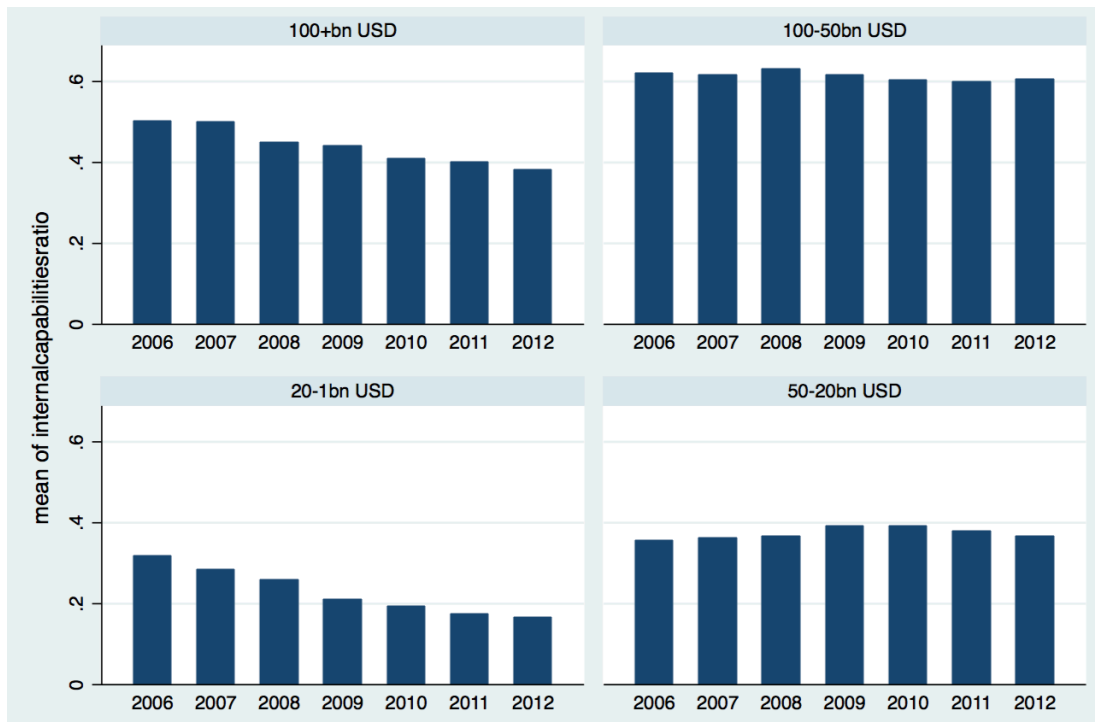


Figure 4. *Internal capabilities, by total DB AUM as of 2012; 2006 to 2012.*

Source: Own research. Data from P&I proprietary database.

The right hand-side of Figure 4 shows the relative unresponsiveness of mid-range organisations following the unprecedented financial market debacle that unfolded in late 2007. The organisations worth 100 to 50bn USD have consistently managed close to 60 percent of their assets internally while the ones worth 50 to 20bn USD were averaging close to 40 percent. The absence of a clear trend in both groups indicates a certain degree of inertia potentially caused by “path dependency”. This could be attributed to a number of factors at strategic management and political levels. One potential cause could be the long-term commitments required by external contractors. Because of lock-in periods, switching from an outsourced to an insourced model is

subject to more constraints than the other way around⁶. Secondly, at equal levels of internal capabilities, inertia is more likely to be an issue for larger organisations because they tend to expand their capabilities towards more complex and illiquid asset classes (hedge funds, private equity and real estate) that are more intensive in terms of human and technological capital. The larger infrastructural and payroll commitments make them less flexible over the short and medium term.

Interestingly, the smallest and largest players exhibit a much clearer downward trend in internal capabilities over the period 2006-2012 (see left hand-side of Figure 4). The decline for the largest players is somewhat unexpected and would require further analysis that is beyond the scope of this chapter. However, a primary hypothesis would be that super-funds might be more sensitive to the erosion of their assets because of the mind-numbing character of their absolute value. A 10 percent market downturn causes a 100mn loss to a 1bn USD plan, a 1bn loss to a 10bn and a 10bn loss to a 100bn USD plan. Their high visibility combined with the absolute value of losses, often signposted by medias, would make them more reactive to find alternatives to their asset management tactics were they not performing adequately. The sharp market downturn of 2008 could exemplify an instance where larger plans exhibited a form of size-conscious behavioural bias. It could also potentially be linked to a lagging

⁶ According to Collins (2003) these lock-in periods vary based on the type of asset classes, with traditional long investments in equities and fixed income products offering the most flexibility whereas more sophisticated alternative asset classes, such as direct investments in hedge funds and private equity, placing more time constraints on investors.

reaction in response to the losses incurred during the GFC in an attempt to outsource the blame for poor performances.

Smaller organisations, which started with a significantly lower proportion of assets managed internally (30 percent average in 2006), exhibit a similar downward trend. As the GFC unfolded, these smaller players in relative terms, have consistently decreased the proportion of assets managed internally, reaching 17 percent in 2012. In this case, the causes are somewhat easier to identify. Smaller organisations are indeed a lot more sensitive to fixed costs and exhibit large economies of scale for small increments of AUM (Collins, 2003). The inverse effect holds true when their asset base decreases over time. The 2007-08 collapse of global financial markets likely forced smaller organisations to outsource investment management as their asset base melted below a breakeven point rendering the fixed costs of internal management unbearable.

These observations have important implications. Indeed, a number of authors have stressed the importance of AUM to insource investment decisions. Although authors have not ventured to determine a clear threshold, the consensus has been that larger asset base equated larger internal capabilities (Clark and Monk, 2013b; Collins, 2003; Dixon and Monk, 2014). While the findings presented here confirm the general character of this assertion, there are still notable counter-examples. The Louisiana State Employees' Retirement System and the South Dakota Investment Council, both accounting for less 10bn USD of AUM in 2012, respectively managed 30 percent and 64 percent of their assets internally. These examples demonstrate that smaller players can insource a significant portion of their investment activities. Smaller organisations

could represent a critical group in taking steps towards insourcing if the markets were to return to stability and growth in the coming years. As of 2012, the smaller plans included in the sample (1-20bn USD) accounted for 11 organisations totalling 113bn USD of assets. For a 1 percent average increase in internal capabilities, there would be a 1.13bn USD outflow from private sector hands towards local pension institutions. This would represent a substantial loss to asset managers while the significant reallocation of assets would increase the demand for local public sector labour.

Although there is an aggregate downward trend over the observed period, there remains a variety of models of internal capabilities and individual structures appear to have been only mildly affected by the GFC. An interesting pattern that emerges is a conversion towards a *hybrid* model combining insourcing and outsourcing; although the overall trend contradicts the hypothesis of an insourcing trend following the GFC, this finding is still supportive of the hypothesis about an ongoing rescaling of U.S. public pension finance. This is exemplified in several cases. The most notable ones are the New Jersey Division of Investment, the South Dakota Investment Council and the Teachers Retirement System of Texas that were largely insourced back in 2006 (over 75 percent of assets managed internally) and exhibited a notable decrease in the scale of their internal operations, effectively converging towards a *hybrid* 50-50 model. On the other hand, The State of Wisconsin Investment Board and the Virginia Retirement System, both predominantly externalised organisations back in 2006, have increased their internal capabilities towards a similar *hybrid* model.

This variegated responsiveness to rapidly changing market environments and the diverse ranges of internal capabilities are used to formulate a typology of make-or-

buy models. Table 1 classifies the 31 state and local plans according to their model of in- versus outsourcing and their organisational responsiveness:

Table 1. *Typologies of state and local plans' internal capabilities management, 2012.*

| | Static | Dynamic |
|------------|--------|---------|
| Insourced | 2 | 0 |
| Hybrid | 9 | 8 |
| Outsourced | 9 | 3 |

Source: Own research. Data from P&I proprietary database.

The organisations exhibiting a clear upward or downward trend in internal capabilities over the period 2006-2012 are categorised as *dynamic*. They form the group supporting the hypothesis of a rescaling of public pension management. This group is composed by a third of the observed organisations. While none of them have rescaled their operations towards an *insourced* model (above 60 percent), the majority have made a strategic move towards further hybridity (50-50 percent model). Conversely, the dominant strategic approach, or absence of it for that matter, has been *static* with about two thirds of the observed state and local plans exhibiting little change in their models of internal capabilities over the period. Only 2 organisations have consistently held an *insourced* model while the 18 other *static* organisations are evenly split between *hybrid* and *outsourced* models. The prevalence of *hybrid* and

outsourced organisations associated with the downward trend in internal capabilities identified previously calls to question the assertion of an insourcing trend amongst state and local pension plans. The dominance of the *static* model concurs with Clark and Monk (2014) recent research on IMAs showing that most plans also face issues of adaptiveness, particularly in a period of accelerated changes in financial markets.

There are also several individual cases that are worth further attention because of their peculiar geography. Particularly the New York City Retirement System, the Illinois Municipal Retirement Fund and the Teachers Retirement System of the State of Illinois. All three provide examples of public pension plans, falling in the *static* and *outsourced* category, that have consistently managed less than 10 percent of their AUM internally over the observed period. As these organisations happen to be located in states that are home to leading IFCs, namely Wall Street and Chicago, one might have expected that their privileged physical access to market information and highly-specialised and liquid labour markets to have supported these organisations to build their internal capabilities. Albeit not sufficient to make substantive inferences, these examples hint towards an instance of co-location between financial institutions that entices dependence as opposed to positive agglomeration effects.

The empirical evidences presented so far go against conventional expectations with regards to the difficulties tied to investment at-a-distance. In particular, they give ground to formulate the hypothesis that geographical proximity to large centres of finance might actually put buy-side public pension plans at a disadvantage when considering internal management. This could be explained by the saturation of local labour markets for highly skilled financiers pertaining specifically to IFCs. In

particular, as the most competitive financial centres regroup top-tier private sector firms, public sector institutions might find it increasingly difficult to offer competitive salaries. According to Wójcik (2012), over the 30 years leading up to 2008, Manhattan led the way for skyrocketing compensation with a peak 160 percent premium compared to the rest of the country. While these observations would require dedicated case-study based research to be better understood, they certainly challenge conventional wisdom with regards to the role co-location plays in the organisation of large institutional investors (compare with Clark, 2000; Cook *et al.*, 2007; Dixon and Monk, 2014; Storper and Venables, 2004).

3.7 Home-bias

Institutional investors are looking at international financial markets in their search for adequate diversification and investment opportunities (Clark and Monk, 2015). On average, state and local plans invest 20 percent of their assets in international equities and 5 percent in international fixed-income. Although this means substantial funds are allocated to foreign territories, the bulk of investments remains largely concentrated towards U.S. financial assets. Unfortunately, the asset allocation of internal capabilities has not been disclosed by all 31 plans that provided information on their total internal capabilities. Additionally, the asset allocation of internal capabilities has only been collected for the years 2010, 2011 and 2012. While these bring limitations, and call for caution in making inferences, the data available and presented in Figure 5 still provide interesting first-hand insights in terms of the geographical cum asset class knowledge bias observed in public plans internal capabilities.

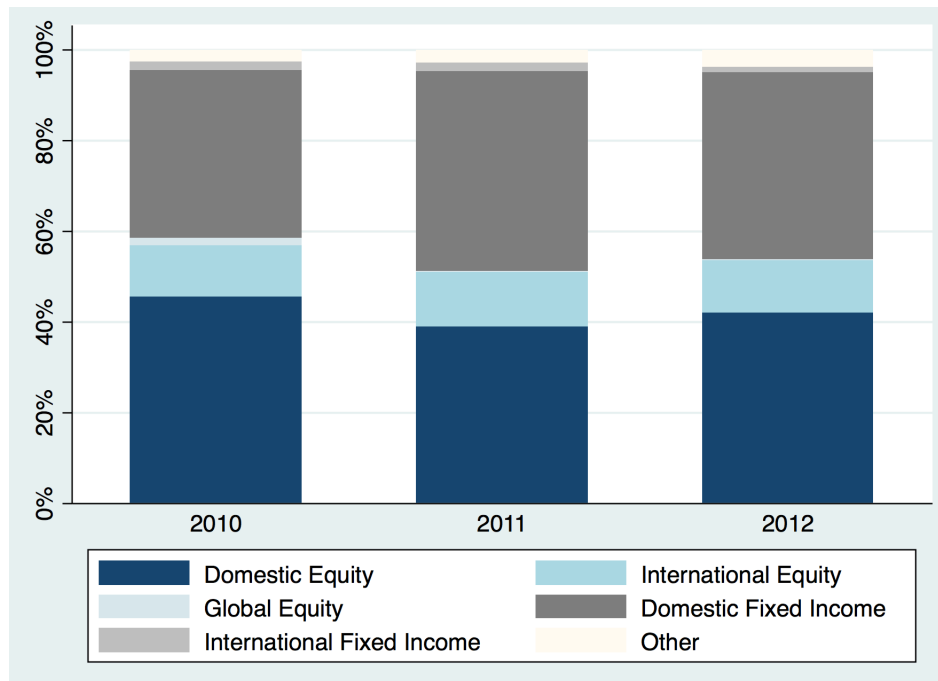


Figure 5. *Asset allocation of internal capabilities, 21 plans, 2010 to 2012.*

Source: Own research. Data from P&I proprietary database.

The asset allocation of internal capabilities remained fairly stable over the 3 years. The strong home bias reflected in overall portfolio allocation is even further exacerbated when looking at the repartition of assets allocated to internal capabilities. Indeed, internal resources are almost entirely focused on domestic equity and domestic fixed income investments. Combined, the two asset classes consistently represent between 60 and 70 percent of internal capabilities. State and local plans' strong preference for internalising traditional investments made on U.S. soil is most likely due to their better knowledge of local markets and easier access to timely and transparent information. Furthermore this could also be attributed to a growing disbelief in the added-value of investment consultants for investments in traditional domestic asset classes (Jenkinson, Jones and Martinez, 2016). There seems to be an equal confidence amongst public pension plans in terms of their ability to manage domestic equity and domestic fixed income as the repartition between the two asset classes remained balanced and

stable throughout the years, and across various size. Non-domestic fixed-income investments were almost entirely outsourced. Finally, only 12 plans relied on internal resources to invest in international equities throughout the time period⁷. Alternative investments such as hedge funds and private equity were almost entirely left to private sector hands. This contrasts with other models of insourcing such as the Norwegian and the Canadian model that insource private market investments as well as international investments in public markets (Monk, Sharma and Sinclair, 2017).

3.8 Conclusions

The organisation of public pension finance keeps revealing its great diversity. As I have demonstrated, plans' AUM and internal capabilities vary substantially, through time and across spaces of local, regional and national finance. In most cases, state and local plans are placed in front of a dichotomous choice to either insource locally in markets where financial activity is very limited, or outsource the management of their assets to distant leading financial centres. While the landscape for highly skilled financiers is unevenly spatially distributed and highly concentrated around the country's IFCs, state and local plans sit on extraordinary financial resources that should challenge the idea that they are weak institutions at the mercy of Wall Street. While the empirical findings confirm that empowerment at a local and distant level is very much a possibility, there is no apparent pattern of a winning model of

⁷ International Equity and International Fixed Income classification denotes strictly non-domestic investments. Global Equity regroups investments that were not geographically unbundled by the plan and therefore can regroup both domestic and non-domestic investments.

organisational arrangements and the localisation of investment decisions still comes in many shapes and sizes.

The findings presented here show that a number of public pension plans have not waited for the GFC to choose to develop their relational autonomy vis-à-vis private contractors by insourcing their investment functions. In opposition with the literature, I find supporting evidences that distance from IFCs may in fact enable state and local plans to develop their internal capabilities. This finding is consistent with Dixon and Monk's (2014) proposition that distant institutional investors may find ways to compete on local labour markets on the basis of a distinctive value proposition. On the other hand, I find that co-location with IFCs may in fact place constraints on plans' ability to increase their autonomy; a hypothesis is that the immediacy of the financial incentives offered by local private sector institutions outweighs plans' offer for extra-financial benefits.

While state and local plans are looking at global financial markets they still exhibit a substantial home bias reflected both in their total asset allocation as well as in the focus of their in-house expertise. Because information asymmetries on domestic equities and fixed income tend to be lower, distant organisations can focus their in-house expertise on these assets classes. Furthermore, because private sector compensation premium on these same asset classes remains lower than it is for more complex asset classes, such as emerging markets and alternative investments, it enables public institutions to offer comparatively competitive compensation. As investments in traditional asset classes represent the clear majority of state and local plans' portfolios,

it is arguable that they have room to manage a significantly larger proportion of their assets in-house than they currently do.

While the consensus on the relationship between economies of scale and internal capabilities is questioned through counter-examples, the findings presented here indicate that AUM do play a role in constraining and influencing the choice to insource the investment functions of public pensions plans. The relationship is particularly cogent for small and super-large plans that both exhibited a great deal of sensitivity to the erosion of their assets caused by the GFC. While a trend of increasing relational autonomy of state and local plans vis-à-vis Wall Street financial services may not be clear-cut, a form of institutional rescaling of public pensions on and beyond the frontier of finance has started to take place. This has so far predominantly taken the shape of a re-balancing of internal capabilities towards a 50-50 model, increasing the prevalence of “institutional hybridity”. This finding concurs with Lee *et al.*'s (2009) reading of post-crisis processes of financialisation.

The predominant lack of adaptiveness of state and local plans remains an issue that needs to be addressed (see also Clark and Monk, 2014). Indeed, only a minority of the organisations observed in this study exhibited a dynamic management of their internal capabilities over the period 2006-2012. The extent of such inflexibility is somewhat worrying considering the magnitude of the events that took place during these years. Finally, notwithstanding the dominant inertia, if the markets were to regain credible stability, the trend exhibited by the size-conscious large players as well as smaller organisations attuned to economies of scale could well be reversed and bring further back-flows of assets away from IFCs towards locally managed state and

local plans. This reshaping of public pension finance would have serious implications for private sector firms and create new challenges for public pension plans as sound governance will become even more critical to the fulfilment of their mission as they grow more autonomous.

4. AUTARKY IN STATE PENSION PLANS: A TEST OF THE MAKE-OR-BUY THESIS

ABSTRACT. There is a growing body of literature on the geography of asset management and institutional investors that stems from urban economics and economic geography. However, academic understanding of beneficiary institutions' response to the dilemma of making-versus-buying investment returns has been largely conceptual and limited to punctual observations. This chapter addresses the issue through a statistical analysis of a unique proprietary dataset on DB public pension funds in the United States. The results indicate that while economies of scale provide a relatively weak conceptual predictor, both the place of decision-making and the geography of investments significantly impact organisational arrangements. While public pension plans function in relative autonomy at-a-distance for their investments in domestic public markets, they face persistent difficulties in attracting skilled workers specialised in private and distant markets. In general, public plans' proximity to financial agglomerations appears to be detrimental to their ability to insource their investment functions. Finally, the results reveal a significant agency problem arising as plans increasing investment return expectations makes them turn to external contractors.

4.1 Introduction

In the wake of the GFC, the search for alternative solutions to traditional networks of asset management has gained momentum amongst investment professionals and

academics alike. Although large asset owners have traditionally outsourced their investment functions to asset managers and consultants (Clark and Monk, 2013), insourcing is now becoming an increasingly attractive investment model stemming directly from a decade of intensifying criticism towards the financial industry. A body of empirical studies now stands to question the ability of financial intermediaries to deliver the performance required to justify their costs (see Lakonishok, Shleifer and Vishny, 1992; Hooke and Walters, 2013; Jenkinson, Jones and Martinez, 2016). In the context of a looming worldwide pension crisis, recent studies have highlighted the heavy burden investment fees place upon beneficiary institutions. Clark and Urwin, (2008) estimate that the ratio of internal to external investment costs for pension funds is 1 to 10 if not greater.

In the United States, where the underfunding of public pension plans has reached unprecedented levels, insourcing provides an interesting model to improve funding status through enhanced net investments returns – a key aspect in solving the ongoing pension crisis (Munnell, Aubry and Cafarelli, 2015). However, the implementation of internal asset management capabilities within the public sector is not without its challenges. The geography of contemporary finance is important in explaining and understanding these challenges. The work of economic geographers has substantially enhanced existing scholarship in management, finance, and pension economics by recognising the fundamental importance of the geographical location of financial institutions in relation to what Clark and Monk (2015) have coined “spatially extensive financial markets”. In particular, Clark, Monk and Dixon, have contributed rich insider perspectives and theories in economic geography on the relations between

institutional investors, such as pension funds and SWF, and the financial industry (see most notably Clark and Monk, 2014a, 2014b, 2017; Dixon and Monk, 2014).

Whereas this body of research has emphasised that large asset owners have traditionally extensively relied on financial intermediaries to carry their investment functions it remains somewhat indecisive on the locational factors that constrain institutional investors in their ability to insource their investment functions. This chapter aims at bridging this gap using a quantitative approach relying on statistical methods to analyse a unique proprietary dataset on the investment practices of U.S. public pension systems. The results reveal the complexity of plans' response to what Baker and Hubbard (2003) coined the "make-or-buy" dilemma. In particular, they contribute new perspectives on the design of financial institutions and the "problem of embeddedness" (Granovetter, 1985) in the production of investment returns in public pension systems.

The chapter is structured in four parts. In the first section, I present a framework that provides a tentative theoretical description of the problem of embeddedness in public pension plans. The framework encompasses institutional and geographical scales deemed important in public plans' response to the make-or-buy dilemma. It is underpinned by selected scholarship which I review in the second section. Starting from a neoclassical theory of the firm, I propose to review more recent contributions in economic geography to help elucidate what might motivate financial institutions to conduct transactions using internal resources rather than external contracts. Implications are drawn for the strategic placement of investment return production in public pension plans. The penultimate section describes the proprietary dataset

specifically developed for the study as well as the design of the econometric model used in the analysis. The fourth and final part discusses the results of the statistical analysis before concluding on the practical implications of the findings.

4.2 The problem of embeddedness in public pension plans

In order to ground the literature review and the empirical ambitions of this chapter, I propose to first sketch the problem of embeddedness in public pension plans' asset management in the United States. Whereas the findings presented in this chapter are meaningful to ongoing debates in the geography of finance and relevant to a larger set of financial institutions, public pension plans feature a number of geographical and institutional singularities. In this short section I emphasise key distinctive characteristics of public pension systems to contrast them with akin financial institutions. The most important distinction, to which scholarship in pension economics has given relatively little credence, is that state and local plans are geographically dispersed institutions that follow a public administration logic. This means that state and local plans are scattered across the country. In that sense, they are unconventional as they do not abide by the financial industry's agglomerative processes. As a result, more often than not, public pension plans face the challenge to conduct their asset management activities from locations situated at or beyond what Dixon and Monk (2014) have coined the "frontier of finance".

While local plans *de facto* have their headquarters in their respective cities, state plans generally have their headquarters located in their states' administrative capital. One

will even find formal *de jure* prescriptions for state plans to establish their headquarters in their administrative capital. Although there are a handful of exceptions to this practice^{8&9}, this geographical dislocation is the dominant order of public pension plans in the United States. Due to their larger territorial scope, state plans usually also operate walk-in administrative offices for their members in other strategic areas at a regional level. However, the core of their asset management activities is conducted from their designated headquarters. As the present study is interested in locational issues in the production of investment returns, plans headquarters are used as the geographical centre point of analysis. From each plan's headquarters, embedded in specific and varied local contexts, stems the investment management decisions of state and local pension plans.

Taking plans' headquarters as a point of departure, I build upon Taylor and Thrift's (1983) theoretical framework for firm segmentation in economic geography and propose an original framework encompassing three scales. Each scale represents a specific context deemed important in shaping plans' response to the make-or-buy dilemma in relation to the production of investment returns. The micro-institutional scale encompasses characteristics pertaining to plans' "institutional form" (Dixon, 2012). The meso-economic scale encompasses plans' local economic environment as

⁸ One notable exception is the California State Teachers Retirement Systems (CalSTRS) which, following a special assembly bill voted and passed in 2004 by the state legislature, was allowed to seek opportunities to establish its headquarters beyond the Sacramento County in West Sacramento, officially part of Yolo County, as part of a larger joint plan to develop the Sacramento Riverfront under the name of The Sacramento Riverfront Master Plan.

⁹ Another rare exception, was Texas Teachers that ventured into opening a satellite office in London, United Kingdom in 2014, with mixed results.

well their physical connectedness with major centres of finance at a national level. Finally, the macro-political scale encompasses characteristics pertaining to plans' sponsors (the government administration plans depend from). These three scales are schematically presented in Figure 6. In a nutshell, the framework emphasises that public pension plans respond to the make-or-buy dilemma from distinct local geographical and institutional contexts. In addressing the dilemma, any given plan is embedded in a specific context that presents a unique set of institutional characteristics such as size of AUM, liabilities and investment objectives, its sponsor's propensity to privatise government functions, and a unique geography in relation to local financial service providers, specialised labour markets, major financial agglomerations and global financial markets. This theoretical framework emphasises the atypical geography of public pension asset management and has status in reference to selected literature which I review hereafter.

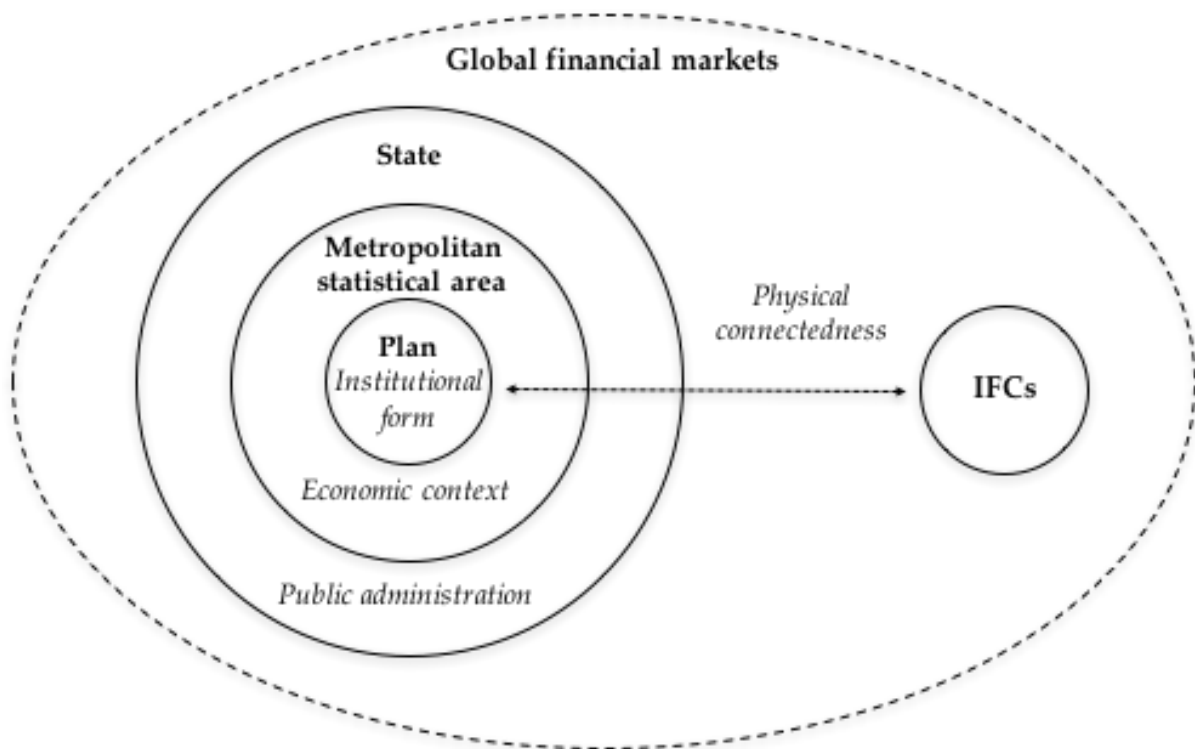


Figure 6. *Conceptual scales of embeddedness in public pension plans' asset management.*
Source: author.

4.3 The neoclassical approach to institutional size

This chapter aims at enriching academic understanding of institutional size and its growth determinants in the context of financial asset management. It is common practice in the industry to approximate institutional size using the sum of the assets managed by a financial institution; however, there are several limitations to this approach. Perhaps most importantly, it neglects to evaluate the degree of institutional integration¹⁰. Cogent of the argument that “size is a multidimensional construct” (Taylor and Thrift, 1983) I base the following reflection on a refined definition of institutional size as the proportion AUM managed internally by a single asset owner. This particular proxy of institutional size quantifies plans’ response to the make-or-buy dilemma and grounds the following enquiry.

Foundational theories in neoclassical economics looked into why firms choose to grow organically rather than to manage a network of external contracts. While recognising the importance of firms’ spatial distribution, Coase argued in his seminal article *The Nature of the Firm* (1937) that the central determinant of firms’ size was found in their ability to internalise costs of production. Accordingly, a firm’s size was thought to grow as a function of price mechanisms in an effort to bring costs of production down. This dynamic was expected to be pursued until the cost of conducting an additional

¹⁰ Another significant limitation is the underlying assumption that all assets are created equal; yet there are important qualitative distinctions between and within asset classes that have important consequences on the organisational arrangements necessary to their management.

transaction internally became equal or higher than the cost of contracting an external provider.

Coase's theory would predict that in equilibrium, beneficiary institutions should build-up their internal capabilities to the point where they can no longer replicate the functions provided by external providers at a lower cost. This dynamic is captured by the concept of economies of scale and is still commonly used to evaluate the size of financial institutions (note that I refer here to institutional integration and not AUM). Prominent scholars interested in institutional investors and the asset management industry have insisted on the importance of economies of scale in determining pension funds' institutional integration. The work of Clark and Monk on insourcing, outsourcing and offshoring is largely underpinned by a scale based taxonomy of financial institutions (see most notably Clark, 2000; Clark, 2008; Clark and Monk, 2013b; Clark and Monk, 2016). In general, their theory predicts that larger pension plans in terms of AUM should be able manage a larger percentage of their assets internally. This view emphasises micro-institutional characteristics in addressing the make-or-buy dilemma.

4.4 The economic geography approach to institutional size

Reflecting a general trend in economic geography, recent commentaries on the financial industry tampered 1990's speculations on the "end of geography" (see for instance Cook *et al.*, 2007; O'Brien and Keith, 2009). Twenty-five years after O'Brien's (1992) thesis, notwithstanding important changes in the spatial configuration of

financial institutions and financial markets, location matters in unprecedented ways in contemporary finance. This is perhaps most tangibly felt in IFCs and has been extensively documented by economic geographers (See for instance Clark, 2002 and Cook *et al.*, 2007 on London; Wójcik, 2013 on New York and London; Dörry, 2014, 2016 on Luxembourg; Engelen and Glasmacher, 2011 on IFCs in general and Engelen and Grote, 2009 on the demise of second tier financial centres). However, in parallel to discussions on the agglomerative processes and the network economies of the financial industry, scholars remain indecisive in explaining how and why location matters in the production of investment returns. This unaddressed question has direct and important implications to understand how asset owners articulate their response to the make-or-buy dilemma. Conceptually speaking, for an asset owner “making” investment returns entails replicating internally the functions of markets. From a locational standpoint, the question is whether asset owners can replicate such functions from diverse local contexts. To better understand the challenges this task represents, I hereby briefly describe what these functions entail.

Financial markets offer a variety of investment solutions that can be combined to tailor portfolios with specific risk-return profiles. By convention, portfolios reflect a strategic asset allocation determined by pensions plans’ boards of directors and/or investment management committees¹¹. Once implemented, the investment solution generates a return from which is subtracted its engineering, operationalising and monitoring costs. An ex-post assessment is then used to assess its effectiveness; by convention,

¹¹ Not all plans have a dedicated investment management committee.

this is done by comparing actual net returns on investment to a benchmark that adequately mimics portfolio composition. While it is commonly accepted that on average, investment managers are not capable of consistently outperforming their benchmark or “beating the market”, the dominant practitioner’s belief remains that a select number of individuals with the right combination of superior skills, expertise and information will generate superior investment returns (Clark and Monk, 2013). Logically then, from the perspective of asset owners, the objective is to consistently identify such individuals and either hire (insourcing) or contract them out (outsourcing).

The challenge to find talented investment professionals, whether through in- or outsourcing, is shared indistinctively between private and public sector asset managers. However, public institutions face the constraint of having to attract and retain investment professionals with compensation packages that are significantly less attractive than those offered in the private sector. The underpinnings of this public-private sector compensation gap are well explained in dedicated literature. Stressing the central role played by deregulation, Philippon and Reshef (2012) estimate that the inflation of wages in the financial sector may account for up to a quarter of observed income inequalities in the U.S. since the 1980’s.

In a follow-up study, Wójcik (2012) showed that while salaries in finance jobs increased by 81 percent over the 30 years leading to the onset of the GFC, salaries in the securities’ sub-industry in Manhattan skyrocketed to a 160 percent premium compared to the rest of country. Generally, government institutions under close public scrutiny have not been able to match this inflation. According to MacIntosh

and Scheibelhut's (2012) international study of pension funds, public sector asset managers in the United States receive on average amidst the least competitive compensation packages compared to Europe and Canada in particular. Consequently, U.S. public pension plans have been largely side-lined in the competition to recruit talented investment professionals.

This issue has been problematized in the literature dedicated to insourcing. Although Canadian pension plans stand out by closely matching industry compensation standards, most publicly governed asset owners have not received the political support to unlock the budgetary resources necessary to hire star-performers. While Bachher and Monk (2012) argued these institutions should shelter from the market by targeting a “different type of employee altogether”, Munnell, Aubry and Sanzenbacher (2014) also warned of a “quality gap” that could result when hiring individuals willing to accept discounted compensation and benefit packages. These arguments deserve further scrutiny, in particular in reference to qualitative distinctions between the skills, expertise and information required to manage different type of financial assets.

As noted by Bachher and Monk (2012) the difficulty to attract talent is most notable for investment professionals specialised in sophisticated asset classes such as emerging markets and alternative investments as they command higher wage premiums. Notwithstanding the importance of their argument, they somewhat omit to recognise the implications of the considerable bias in institutional investors' asset allocation towards proximate, efficient and liquid investments. Indeed, domestic investments in traditional asset classes (equity and fixed income) are usually

characterized by higher degree of market efficiency and command market-specific skills, knowledge and expertise that are in good supply. Consequently, the compensation premium between private and public sector workers covering these asset classes tends to be lower. Given their budgetary constraints, public plans should have a better ability to recruit and build their internal capabilities in these traditional and domestic asset classes. As a result, one can expect larger allocations towards U.S. equity and fixed income to be associated with larger internal capabilities. Since asset allocation is determined as a function of investment objectives at a plan level, this view emphasises the role of micro-institutional characteristics in plans' response to the make-or-buy dilemma.

It is widely acknowledged that industry clusters boost the productivity of co-located firms. Industrial clusters attract and retain workers with superior abilities (Florida, 2002b) and increase knowledge production and transmission (Gertler, 2003; Storper and Venables, 2004). These dynamics underpin the enduring spatial concentration of financial activity in IFCs. Whereas authors recognise the competitive advantages of IFCs for financial institutions in a general sense, it remains unclear whether they allow co-located investors to outperform the markets. So far, the competitive advantages of IFCs have been primarily discussed in reference to the sell-side of the industry (See for instance Clark, 2002; Wójcik, 2013; Dörry, 2014). While this scholarship offers important insights on the relational and locational arrangements of financial institutions it only obliquely informs on the importance such arrangements have in the production of investment returns. In particular, they tell us little about where buy-side institutions should strategically place their operations relative to the sell-side of the industry. Even a fully insourced asset owner will likely have to interact with

financial intermediaries to perform transactions and research investment opportunities.

Building upon Storper and Venables' (2004) conceptual work on the importance of face-to-face contact, the work of Cook *et al.* (2007) on the City of London makes a compelling case in favour of physical proximity or “co-location” for financiers. However, the verbatim quotes as well as the findings of their research suggest that the importance their respondents attribute to co-location largely pertains to commercial interests (attract capital) rather than operational imperatives (produce investment returns). Indeed, financial institutions tend to agglomerate around “capitals of capital” (Cassis, 2006) with the primary objective to attract and retain the largest possible pools of assets to manage. Subsequently, the presence of a large number of providers covering a diversity of functions promotes competition and attracts clients that seek breadth and depth of services. These locational advantages of financial agglomerations have little value to buy-side financial institutions such as pension funds and SWFs.

On the other hand, access to specialised labour pool and non-commodified information are central to the performance of public pension plans. For instance, the Public Employees' Retirement Association of Colorado, headquartered in Denver, and the State Board of Administration of Florida, headquartered in Tallahassee, face significantly different challenges to recruit specialized labour as well as maintain quality relationships with external contractors than the New York State Teachers' Retirement System which is headquartered in Albany, New York. This locational constraint taps into meaningful questions for financial geographers regarding the

flattening of the investment world. In particular it begs the question of how the place of investment decision making matters in a world of increasing network economies sustained by cognitive, social and institutional proximity via technological means (Boschma, 2005; Boschma and Frenken, 2010).

To discuss this locational challenge, I identify three distinct views loosely inspired by Gertler's (2003) geographical conceptualisations of tacit knowledge. The first view would argue that investors should seek close physical proximity with major financial agglomerations. It supposes that financial clusters, and IFCs in particular, provide superior spaces of decision-making by pooling workers and technological infrastructure in ways that create competitive knowledge regions. A second view would argue that co-location should be understood more loosely as a relational phenomenon. As argued by Clark and Monk (2015), establishing direct physical proximity has become impractical given the spatial extensiveness of contemporary global financial markets. Additionally, given the expanded territorial reach of virtual investment platforms and commodified financial information, seeking physical proximity has arguably become increasingly superfluous. Instead, investors should aim to integrate "communities of practice" (Gertler, 2003) that may be physically distant from one another and exchange information and expertise through what Bathelt and Cohendet (2014) would call "knowledge platforms". According to the first view emphasising the importance of physical proximity, asset owners located outside of major financial agglomerations may be forced to resort to outsourcing as a way to piggy-back on external providers co-located in IFCs. This view is emphasised by Dixon and Monk's conclusions on frontier finance as the authors emphasise: "the

enduring forces of centralization in global financial markets and the importance of agglomeration economies in the market for financial services”.

The third view of co-location in the production of investment returns posits that investment outperformance occurs by seeking physical proximity with the underlying investments rather than where their derivative financial securities are traded – stock exchanges. The work of Coval and Moskowitz (1999, 2001) on investors’ preference for geographically proximate investments, provides valuable insights on this perspective. In their research, the authors argue that the home bias phenomenon is rooted in a finer investor-investee spatial proximity rather than a national/international dichotomy. Specifically, local investors are shown to be able to take advantage of “information asymmetries” and earn abnormal returns on investments in local firms, especially in and around small and remote cities. The authors’ assert that physical proximity between investors and investee creates information advantage derived from local market knowledge. Co-location allows physical observation of the firm’s operations as well as regular interactions with investees’ management and employees. If the industry’s spatial distribution was driven by the objective to generate superior risk-adjusted investment returns, it follows that the investment management industry would be dominated by fragmented small to medium size institutions found in the immediate vicinity of economic clusters.

As Coval and Moskowitz concede however, it appears that only a handful of investors take advantage of this local investment strategy while the majority prefers to cluster in and around large financial centres. The centripetal forces of IFCs are justified in part

because they allow financial institutions to save on the transactions costs that would be associated with running a scattered network of smaller institutions. To what degree such transaction costs outweigh the improvement in investment returns is a matter of empirical research and is beyond the scope of this chapter. However, one should remember that asset managers likely place a premium on co-locating their activities in IFCs first and foremost because they provide spaces of agglomerated financial capital rather than investment outperformance. This should not be understated. Indeed, since asset owners such as public beneficiary institutions have captive clients, they also face a distinct set of incentives in seeking co-location with IFCs. These locational dimensions emphasise the importance of meso-economic characteristics in determining asset owners' response to the make-or-buy dilemma.

4.5 Agency problems and functional legitimacy

Because state and local pension plans are part of a government apparatus, they are subject to a number of additional agency problems that have their importance in explaining their particular institutional arrangements as well as their functionalism. Clark (2008) notes: "The governance of pension and retirement-income institutions is a political matter as much as it is a matter of financial management". Munnell, Haverstick, and Aubry's (2008) research showed that state and local plans' funding discipline is largely dependent upon the fiscal health of the public administration they respond to. Because of the costs inherent to building and maintaining a pension plan's internal management capabilities (infrastructure, technologies, payrolls etc.), governments in fiscal distress are more likely to outsource investment decisions to the private sector.

A key feature of the DB pension model is that market risks are borne by employers rather than participants as it is the case in the DC model. In the public sector, since employers are government institutions, the liabilities of public DB pension plans are ultimately borne by taxpayers. Coronado, Engen and Knight (2003) noted that because benefits are guaranteed in DB systems, participants are less inclined to closely monitor the institutional performance of their providers. The lack of members' scrutiny as well as the temporal mismatch between the investment horizon of DB plans and electoral cycles can result in prolonged period of inefficiencies. Unfortunately, these can also go unnoticed by taxpayers as systematic under-contributions and poor investment performance tend to reach the public's consciousness only too late, once it becomes a matter of political urgency. The case of Illinois in its recent attempt to alter past pension promises to meet its debt obligations provides a relevant instance of the case.

Studies on financial intermediaries also warn of an important behavioural bias as plans' sponsors may have an incentive to use their services in order to deflect responsibility in the event of poor performance. Jenkinson, Jones and Martinez (2016) argued that in light of investment consultants' inability to deliver competitive investment returns, persistence to rely on their services must be driven by other "soft-factors" such as "hand-holding" and rationalising investment decisions (see also Lakonishok, Shleifer and Vishny, 1992). Generally, one can expect the functional performance of public pension plans and plans' sponsors to be negatively associated with internal capabilities. These agency issues emphasise the importance of macro-political characteristics in determining public pension plans' response to the make-or-buy dilemma.

4.6 Data and methodology

Sources and sample

The following analysis provides empirical evidences on the institutional, economic and political variables that dictate public pension plans' response to the make-or-buy dilemma. It contributes original insights on the role played by the location of financial institutions in the production of investment returns. The database used for the regression analysis compiles data from several sources. Pensions & Investment (P&I), a leading U.S. based news and research provider for institutional investors, supported the present research by granting access to their proprietary dataset containing detailed metrics on the nominal assets public pension plans manage internally. This allowed to derive an internal capabilities ratio for each plan. This ratio is defined as DB assets managed internally divided by total DB assets. This is the quantitative proxy used to evaluate public pension plans' response to the make-or-buy dilemma and is used as a dependent variable in the statistical analysis that follows. This metric is not publicly available and, to my knowledge, has never been used in peer-reviewed academic research. The insights that follow are therefore unique. The period selected for the analysis is 2006 to 2012. Although a longer time series would be desirable, it is the longest one available and is thought to adequately capture the short and medium-term effects of the GFC while smoothing its overall effect by including pre- and post-crisis time periods.

Missing information from P&I's dataset was recovered from the public database compiled by The Centre for Retirement Research at Boston College (CRRBC) and

plans' Comprehensive Annual Financial Reports (CAFRs) available from plans' websites. The plan level dataset was supplemented with local economic and state government data, using statistics from the U.S. Bureau of Economic Analysis (BEA), the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS). Combining these different sources allowed to create a large database that reflects the conceptual framework presented earlier.

While the dataset provided by P&I included 182 state and local plans, careful examination of the data led to a substantial reduction in sample size. 21 institutions are included in the final sample. The reasons for this reduction are as follow: to insure continuity of the analysis as well as to avoid any strategic bias associated with a discontinuation in activity all closed or frozen plans were excluded from the analysis. Plans that had not consistently reported their internal capabilities over the period were also excluded. Significant outliers were contacted individually and excluded if the institution did not formally confirm the reliability of the reported figures.

Through preliminary clustering of the data, I found significant differences between the internal capabilities of state and local plans. In practice, the two categories are formed around the level of geographical coverage their pension management activities encompass. On average, local plans manage 6 percent of their assets internally compared to 39 percent for state plans. The analysis of variance confirmed the statistical significance of the difference between the internal capabilities ratio of state and local plans. This finding concurs with Gehl, Willoughby and Bell (2013) and further stresses the complex and wide-ranging distinctions existing between state and local plans. Unfortunately, given the size of the sub-sample (6 local plans), it was not

feasible to perform a separate regression analysis. I have therefore excluded local plans from the sample and focused the regression analysis on state plans only. Further data collection and analysis on local plans' response to the make-or-buy dilemma could provide an interesting avenue for future research. While the sample was reduced, the use of time series over the course of seven consecutive years brings the number of observations to 147, which is satisfactory for statistical analysis. The plans included in the final sample are listed in Table 2 together with their respective metropolitan statistical area and total AUM.

Table 2. *Geographical distribution of state plans included in final sample.*

| Plan | Metropolitan statistical area | AUM, bn USD |
|---|---|--------------------|
| New York State Common Retirement Fund | Albany-Schenectady-Troy, NY | 150 |
| New York State Teachers' Retirement System | Albany-Schenectady-Troy, NY | 89 |
| Employees Retirement System of Texas | Austin-Round Rock-San Marcos, TX | 23 |
| Teacher Retirement System of Texas | Austin-Round Rock-San Marcos, TX | 112 |
| Louisiana State Employees' Retirement System | Baton Rouge, LA | 9 |
| Louisiana Teachers' Retirement System | Baton Rouge, LA | 14 |
| Ohio Police & Fire Pension Fund | Columbus, OH | 12 |
| Ohio Public Employees Retirement System | Columbus, OH | 79 |
| Public Employees' Retirement Association of Colorado | Denver-Aurora-Broomfield, CO | 40 |
| Pennsylvania Public School Employees' Retirement System | Harrisburg-Carlisle, PA | 49 |
| Public Employees' Retirement System of Mississippi | Jackson, MS | 21 |
| Kentucky Retirement Systems | Lexington-Fayette, KY | 11 |
| Kentucky Teachers' Retirement System | Lexington-Fayette, KY | 15 |
| State of Wisconsin Investment Board | Madison, WI | 83 |
| Arizona State Retirement System | Phoenix-Mesa-Glendale, AZ | 28 |
| North Carolina Retirement Systems | Raleigh-Cary, NC | 77 |
| Virginia Retirement System | Richmond, VA | 55 |
| California Public Employees' Retirement System | Sacramento--Arden-Arcade--Roseville, CA | 243 |
| California State Teachers' Retirement System | Sacramento--Arden-Arcade--Roseville, CA | 155 |
| Teachers' Retirement System of the State of Illinois | Springfield, IL | 37 |
| State Board of Administration of Florida | Tallahassee, FL | 127 |

Source: Pensions & Investments (2012).

The final sample totals 1.43tn USD in AUM which represents 47 percent of the total assets managed by state and local plans in 2012. The plans are fairly well distributed across the country. All five major regions are represented in the analysis. Three plans are located in the Western region (two in California and one in Colorado), three in the Southwest (one in Arizona and two in Texas), four in the Middle West (one in Wisconsin, one in Illinois and two in Ohio), three in the North East (one in Pennsylvania and two in New York) and eight in the South East (two in Louisiana, one in Mississippi, one in Florida, two in Kentucky, one in Virginia and one in North Carolina).

Variables summary

All the variables used in the regression analysis are embedded in one of the three scales that make-up the conceptual framework. Their selection stems from the literature review and additional hypothesis related to their potential importance in determining the proportion of assets managed internally by public pension plans (see Appendix 4.6 for details). The micro-institutional scale, encompasses characteristics pertaining to plans' "institutional form" (Dixon, 2012). It includes the following variables: 1) the natural logarithm of total plan membership, which is used as a proxy for total AUM¹² 2) the demographics ratio, which measures the number of active plan participants per retirees 3) the home bias of asset allocation, which captures the asset

¹² Total membership is used here as a proxy for AUM as AUM is already the denominator of the dependent variable.

allocation dedicated to domestic investments in equity and fixed income instruments and 4) the complexity of asset allocation, which accounts for the proportion of investments allocated to alternatives, private equity and real estate. Using plans' total membership allows to formally put to the test the emphasis put by scholars on economies of scale in institutional investors' response to the make-or-buy dilemma (see most notably Clark, 2000; Clark, 2008; Clark and Monk, 2013b; Clark and Monk, 2016).

The meso-economic scale encompasses measures of general economic activity as well as measures of the vibrancy of plans' local financial sector. The local is defined here as plans' metropolitan statistical area. The U.S. Census Bureau defines a metropolitan statistical area as a geographically delimited perimeter constituted around one "core urban area" that has a population of 50'000 or more: "Each metro or micro area consists of one or more counties and includes the counties containing the core urban area, as well as any adjacent counties that have a high degree of social and economic integration (as measured by commuting to work) with the urban core" (Office of Management and Budget, 2000). Metropolitan statistical area data are considered superior to city level data in capturing the vibrancy of local economic activity; this approach has been used in other empirical research in economic geography and urban studies (see for instance Florida, 2002a, 2002b; Wójcik, 2011; Dougal, Parsons and Titman, 2015).

The meso-economic scale includes the following variables: 5) the natural logarithm of local gross domestic product (GDP) 6) the local unemployment rate 7) the contribution of the finance and insurance industry to local level GDP and 8) the co-location with

IFC dummy. The attention is focused on financial agglomerations that are recognised not only domestically but internationally as the most competitive centres of global finance. These include New York, Boston, Chicago and San Francisco. Proximity is measured by taking the total distance in miles between plans' headquarters and their closest IFC. The distance is coded into a binary variable, taking a value of 1 if the distance is less than 100 miles and 0 otherwise. It sets a realistic threshold for day-travels. Here the issue may not be so much about negotiating investment management agreements for which external providers will happily overcome distance with air travel and over-night stays than it is about maintaining a quality relationship with contractors over time through regular face-to-face contacts which are not overly disruptive to day-to-day business.

Examples of similar approaches in empirical research include Rigby and Brown's (2015) study of the influence of agglomeration on Canadian manufacturing firms' productivity; as the authors were interested in measuring local knowledge spillovers the proximity threshold was set to 5km; Coval and Moskowitz, (1999, 2001) also used a similar approach to measure physical proximity in the context of investment decision making; to distinguish between local and non-local firms the authors set a threshold of 100km. Fieldwork conducted towards a separate research project revealed that external contractors tend to be less inclined to travel to distant pension plans requiring stop-overs and over-night stays. Generally, contractors tend to dismiss small-scale distant institutions all together while visiting sizable distant plans no more than once or twice a year preferring to conduct the bulk of their interactions over the phone. The lack of regular face-to-face interactions to maintain relationships

with external contractors may create an incentive for distant plans to invest in their internal capabilities.

Finally, the macro-political scale encompasses variables pertaining to the government administration plans depend from. As highlighted in the section on agency problems, since public pension plans are creatures of government their functionalism and institutional form is likely to be impacted by broad public administration dynamics. Acknowledging this fact, this scale includes the following variables: 9) state government debt to GDP ratio 10) the number of state government employees 11) plans' one year lagged funding ratio, 12) plans' 5 years return on investments and 13) assumed rate of return (ARR) which reflects plans' expectations in terms of annual investment returns. Including fiscal distress echoes Munnell, Aubry and Quinby's (2011) findings on the importance of state level fiscal health on the funding of public pension plans. These 13 independent variables are included in the model developed for the regression analysis. Table 3 provides descriptive statistics on the dependent variable and the 13 independent variables (co-location with IFC is left blank as it is binary).

Table 3. *Variables' mean, standard deviation and Pearson's correlation coefficients.*

| | M | SD | ICR | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|--|-------|-------|----------|----------|----------|----------|---------|----------|---------|---|---------|-------|---------|----------|-------|
| I. Internal Capabilities Ratio (ICR) | 37.5% | 23.8% | | | | | | | | | | | | | |
| 1. Total membership | 482 | 373 | 0.49*** | | | | | | | | | | | | |
| 2. Demographics ratio | 2.0 | 0.5 | 0.46*** | 0.46*** | | | | | | | | | | | |
| 3. Home bias of asset allocation | 59.5% | 13.3% | 0.32*** | -0.15* | 0.33*** | | | | | | | | | | |
| 4. Complexity of asset allocation | 14.8% | 9.6% | -0.19** | 0.18** | -0.28*** | -0.83*** | | | | | | | | | |
| 5. GDP, metro | 64.4 | 46.1 | 0.27*** | 0.09 | 0.26*** | 0.13 | -0.06 | | | | | | | | |
| 6. Unemployment, metro | 6.4% | 2.1% | -0.07 | 0.17** | -0.23*** | -0.32*** | 0.39*** | 0.19** | | | | | | | |
| 7. Finance and Insurance % of GDP, metro | 6.9% | 2.5% | -0.14* | -0.05 | -0.28*** | -0.16* | 0.11 | 0.08 | -0.06 | | | | | | |
| 8. Co-location with IFC, 100 miles (dummy) | . | . | . | . | . | . | . | . | . | . | | | | | |
| 9. State government debt to GDP ratio | 0.07 | 0.02 | -0.17** | -0.14* | -0.58*** | -0.2** | 0.29*** | -0.44*** | 0.18** | . | 0.22*** | | | | |
| 10. State government employees | 952 | 680 | 0.5*** | 0.71*** | 0.25*** | -0.07 | 0.16** | 0.17** | 0.22*** | . | -0.02 | -0.12 | | | |
| 11. Funding ratio, n-1 | 79.4% | 15.6% | 0.47*** | 0.43*** | 0.17** | 0.21** | -0.13 | 0.06 | -0.02 | . | 0.23*** | -0.02 | 0.41*** | | |
| 12. Investment return 5 years | 5.7% | 4.0% | 0.01 | -0.02 | 0.19** | 0.24*** | -0.3*** | -0.05 | -0.7*** | . | 0.05 | -0.13 | 0.01 | 0.1 | |
| 13. Assumed rate of return (ARR) | 7.9% | 0.3% | -0.24*** | -0.28*** | -0.19** | -0.21** | 0.01 | 0.18 | -0.09 | . | 0.18** | 0.04 | -0.04 | -0.32*** | 0.2** |

***p < 0.01, **p < 0.05, *p < 0.1 (two-tailed)

Source: author's calculations (2006 – 2012).

Model specification

The following statistical analysis is interested in measuring the relationship between the 13 selected variables and plans' choice of making-or-buying investment returns. While the model has institutions at its core, its design reflects the conceptual framework that posits that public pension plans are embedded in specific and complex contexts. As such, the model follows the assumption that the individual specific effects are uncorrelated with the independent variables and thus supports the use of the random effect model for panel data analysis. A Hausman test corroborates the difference in variance between the fixed and the random effects model and confirms that the random effects model is correctly specified. As opposed to the fixed effects model, random effects allow incorporating time-invariant variables into the model. It allows to use the binary co-location with IFC variable and test the significance of proximity versus distance with financial agglomerations in the make-or-buy dilemma. The observed heteroscedasticity of the error terms is corrected by clustering the variance at the plan level insuring the robustness of the model. The final random effects model is expressed in Equation 1 as follows:

$$\frac{DB\ assets\ managed\ internally_{it}}{Total\ DB\ assets_{it}}$$

$$\begin{aligned}
&= \beta_1 (\ln Total\ membership)_{it} + \beta_2 (Demographics\ ratio)_{it} \\
&+ \beta_3 (Home\ bias\ of\ asset\ allocation)_{it} \\
&+ \beta_4 (Complexity\ of\ asset\ allocation)_{it} \\
&+ \beta_5 (\ln Metropolitan\ area\ GDP)_{it} \\
&+ \beta_6 (Metropolitan\ area\ unemployment)_{it} \\
&+ \beta_7 (Metropolitan\ area\ \%GDP\ finance\ and\ insurance)_{it} \\
&+ \beta_8 (IFC\ within\ 100\ miles)_i + \beta_9 \left(State\ \frac{debt}{GDP} \right)_{it} \\
&+ \beta_{10} (\ln\ State\ governement\ employees)_{it} \\
&+ \beta_{11} (Funding\ ratio)_{it-1} + \beta_{12} (5Y\ investment\ returns)_{it} \\
&+ \beta_{13} (Assumed\ rate\ of\ return)_{it} + \alpha + u_{it} + \varepsilon_{it}
\end{aligned} \tag{1}$$

4.7 Results

The model reaches a satisfactory level of explanatory power with an R-Squared of 0.625. The statistical results are presented in Table 4. For consistency, the analysis of the results is structured around the conceptual framework.

Table 4. *Results of random effects model.*

| Variables: internal capabilities ratio (ICR) | Coefficient | SD | 95% Confidence interval | |
|---|--------------------|-----------|--------------------------------|--------|
| 1. Log of total membership | 0.095** | 0.034 | 0.027 | 0.163 |
| 2. Demographics ratio | 0.002 | 0.050 | -0.095 | 0.100 |
| 3. Home bias of asset allocation | 0.310* | 0.148 | 0.020 | 0.600 |
| 4. Complexity of asset allocation | -0.419† | 0.253 | -0.915 | 0.077 |
| 5. Log of GDP, metro level | 0.100* | 0.045 | 0.012 | 0.189 |
| 6. Unemployment, metro level | 0.454 | 0.560 | -0.644 | 1.551 |
| 7. Finance and insurance % of GDP, metro | -1.521* | 0.715 | -2.922 | -0.120 |
| 8. Co-location with IFC, 100 miles (dummy) | -0.299** | 0.106 | -0.508 | -0.090 |
| 9. State government debt to GDP ratio | 0.582 | 1.233 | -1.835 | 2.999 |
| 10. Log of state government employees | 0.166* | 0.074 | 0.021 | 0.311 |
| 11. Funding ratio, n-1 | -0.095 | 0.101 | -0.293 | 0.102 |
| 12. Investment return 5 years | -0.036 | 0.170 | -0.370 | 0.297 |
| 13. Assumed rate of return (ARR) | -12.101† | 6.634 | -25.103 | 0.901 |

N = 147

**p < 0.01, *p < 0.05, †p < 0.1 (two-tailed)

Source: author's calculations (2006 – 2012).

Micro-institutional

Starting at the micro-institutional level, the results confirm that larger plans manage larger proportions of their assets internally. However, while the result is statistically significant, the magnitude of the coefficient remains small in absolute terms as well as in comparison to other variables. The model predicts that for an increase of 1 percent in plans' total membership, the proportion of assets managed internally should increase by 0.1 percent. The finding suggests that while economies of scale do play a role in determining state plans' response to the make-or-buy dilemma, their role should not be overemphasized to the detriment of other contextual factors. A handful of interesting examples further stress the concept's predictive limits. For instance, the Louisiana State Employees Retirement System has managed internally between 25 and 31 percent of its AUM amounting to less than 10bn USD over the 2006-2012 period. On the other hand, over the same period the much larger California State Teachers Retirement System managed similar proportions, ranging from 30 to 36 percent, of its 130+bn USD.

Generally, the data indicate that plans internalise the asset management of proximate and traditional assets and rely on external advisory for their non-domestic and alternative investments. The data shows a positive relationship predicting a 0.31 percent increase in internal capabilities for every 1 percent increase in the home bias. This is most likely related to lower compensation premium paid on expertise in domestic and traditional investments. Indeed, one can assume that public pension institutions are better positioned to attract talent when aiming at hiring investment professionals with levels of expertise commanding a lower compensation premium in

the private sector (Bachher and Monk, 2012). Although the statistical significance is lower (p-value just at the upper 0.1 limit), a reverse effect of a similar magnitude is observed when considering complex asset-classes including alternatives, private equity and real estate. The home-bias result is important since public pension plans invest 76 percent of their assets in domestic equities and fixed-income securities (The Center for Retirement Research at Boston College, 2016).

Meso-economic

At the meso-economic level, the analysis yields interesting and perhaps counterintuitive findings. As discussed previously, the data is focused on the local economic and financial environment in which plans are embedded. Controlling the effect of metropolitan level GDP, the results indicate that the size of local economic activity is statistically significant and positively related to internal capabilities. Specifically, the model predicts a 0.1 percent increase in internal capabilities for every 1 percent increase in metro-level GDP. Although the magnitude is rather small, the sign of the coefficient is consistent with the idea that plans' autonomy is positively influenced by a supportive local economic climate. Conversely, unfavourable economic conditions in the immediate surroundings of plans' headquarters are expected to increase plans' propensity to seek help from external contractors located in more economically vibrant areas. Local unemployment on the other hand is not statistically significant.

Looking at the variables measuring the vibrancy of plans' local financial industry and their proximity to IFCs, the model points to original findings that bring new lights on the role played by distance between the industry and asset owners in the production of investment returns. The model predicts a 1.52 percent decrease in internal capabilities for every 1 percent increase in the contribution of the finance and insurance sector to local economic activity. This brings important empirical evidences to support and refine arguments found in the literature about the issue of institutional investors' access to skills and expertise on two fronts. First, one can expect the compensation gap between private and public sector finance jobs to grow as the local financial industry takes a larger share of local economic activity, thus increasing the disincentive for local private sector workers to accept a job in the public sector when competitive alternatives are available in their immediate environment. This phenomenon increases co-located plans' difficulties to hire and retain skilled workers. It effectively forces public plans to turn to external providers and contract out skills and expertise through investment expenses rather than payrolls.

Another possible explanation would be that plans with an immediate access to a developed local financial industry have a stronger incentive to rely extensively on external contractors as competitive expertise is readily available at their doorstep. Although it may prove costly as suggested by MacIntosh and Scheibelhut (2012), this solution provides a convenient shortcut to overcome the compensation gap and avoid having to manage extensive internal resources. It may also be perceived as a superior solution to manage financial assets as the industry locally showcases a number of well-rounded investment presentations, conferences and meetings supporting their purported ability to beat the market.

Finally, physical proximity to suppliers simplifies the management of contracts making frequent interactions possible and the relationship generally more tangible. Relationships may also be easier to build within a particular metro or regional context that comes with shared history, culture, values and business practices. There may also be a learning strategy as plans with facilitated access to external suppliers, by means of physical proximity, may be interested in maintaining a closer relationship as to not only effectively monitor contractors' activities but also learn best practices through regular interactions.

This finding regarding the influence exerted by the local prevalence of the financial industry is further supported by the statistically significant negative relationship between plans' internal capabilities ratio and their physical proximity with IFCs. The co-location dummy, capturing whether or not plans are within a 100 miles' distance of one of the country's four IFCs, predicts the following relationship: being within a 100 miles' radius of New York, Chicago, Boston or San Francisco¹³ is associated with a decrease in internal capabilities of 0.3 percent. While the magnitude of the effect is rather small, the finding is interesting in terms of the threshold is sets to define co-location in this specific context.

As Gertler puts it: "there is considerable disagreement concerning how *close* should be defined, as well as multiple rationales as to why it is important" (2003). The findings presented here indicate that in the context of contracting investment

¹³ These four financial centres not only dominate financial activity at the national level but are ranked amongst the world's leading IFCs.

management services, while immediate proximity to the industry matters to a larger extent, material physical closeness expands beyond the immediate surroundings of a financial institution to a distance equating approximately to a day travel. In general, these findings demonstrate that asset owners' physical proximity to a vibrant financial sector is associated with higher degrees of reliance on external contractors.

Macro-political

The macro-political variables reflect the incidence of characteristics pertaining to plans' sponsors. As noted earlier, as creatures of state' governments, the strategic management of state pension plans is subject to concerns that go beyond the pension institution itself and reflect broader considerations of public administration. Prior research by Munnell, Haverstick and Aubry (2008) found a positive correlation between states' fiscal health and their ability to meet their contribution obligations. The model tested for similar relationship between fiscal health and internal capabilities. The assumption was that state administrations facing large public deficits would be less likely to approve operational budgets supporting the costs of infrastructure and payrolls necessary to conduct internal management. The model however does not predict a statistically significant relationship between state's debt-to-GDP ratio and internal capabilities. On the other hand, the model predicts a statistically significant 0.17 percent increase in internal capabilities for every 1 percent increase in government workforce. This finding supports the idea that states managing important human resources are more inclined to fulfil missions of public interest internally than resort to privatisation.

Turning to measures of functional performance and their relationship to the make-or-buy dilemma, I contend that it is first and foremost a concern of broader political nature rather than one of strict institutional functionalism. This perspective follows agency theory predicting that agents (here elected politicians, and appointed/elected board members) may be inclined to interfere with the management of public pension institutions to serve personal political agendas. As shown by Munnell, Aubry and Cafarelli (2015), under contributions are often used to reduce public deficits. As suggested elsewhere elected officials may also deflect the responsibility of poor functional performance onto external contractors to shelter their political reputation (Thatcher and Stone Sweet 2002; Jenkinson, Jones, and Martinez 2014).

Interestingly, the model shows no statistically significant relationship between overall ex-post institutional performance captured by the one year lagged funding ratio¹⁴ and plans' internal capabilities. Similarly, investment performance over a 5-year period has no statistically significant influence on plans' internal capabilities. Both results indicate that past functional legitimacy does not impact plans' response to the make-or-buy dilemma. In other words, there is no evidence of a pattern of outsourcing the blame for poor functional performance onto external contractors.

On the other hand, the model reveals an interesting agency problem predicting that future expectations of returns on investments matter to a very large extent in plans'

¹⁴ Funding ratio is tested as it includes both the effects of funding discipline as well as investment returns. The previous fiscal year's funding ratio is used as to capture the effect of available information.

response to the make-or-buy dilemma. Specifically, the model predicts a statistically significant decrease in internal capabilities of 12.10 percent for every 1 percent increase in plans' ARR. These empirical findings indicate that while there is no significant relationship between plans' past functional legitimacy and their decision to build their internal capabilities, increasing future expectations in investment returns are strongly associated with plans' tendency to seek external help.

The fact that public pension plans are allowed to discount their liabilities using expected return on investments provides a strong incentive to inflate ARR. Setting high investment return expectations is not only a misleading cosmetic fix, but it also increases public pension's risk appetite and unreasonably right-skews their allocation towards expensive and volatile asset classes (Andonov, Bauer and Cremers, 2015). The strong relationship between ARR and internal capabilities demonstrates that plans' desire to meet over-inflated expectations are met by seeking the help of external contractors. The logic is simple, certainly costly and potentially dangerous. Beating the market is the job of star-performers. Since plans barely have the budgetary resources to pay average market compensation to recruit investment professionals they have no other choice than to contract out the services of private sector star-performers to meet their inflated investment objectives.

4.8 Synthesis of results

While the results confirm the relationship between the size of assets managed by financial institutions and the degree of institutional integration, they also highlight its

peripheral significance when considered in conjunction with more complex contextual variables. The results invite scholars, practitioners and policy makers to discount their current emphasis on the importance of economies of scale and give further credence to underappreciated locational factors that affect the management of public pension institutions. In particular, the empirical results emphasise the role of pension plans' location in relation to the financial industry, the geography of their strategic asset allocation as well as their investment return expectations.

The results of the statistical analysis contribute to academic understanding of co-location in the production of investment returns. Of particular interest to scholarship in the geography of finance, the findings suggest a causal relationship between the extent of geographical marginalisation relative to financial agglomerations and the build-up of autonomous investment capabilities. Breaking with conventional practice becomes not as much a conscious decision to challenge the status quo as it emerges organically from having to function at-a-distance from established financial centres. Dictated by the rules set by portfolio theory, asset allocations remain homogenous across geographies. However, institutions operating at the margin appear to leverage the virtualisation of financial markets and lower costs of labour to invest autonomously in domestic public markets.

As the results suggest, isolation may be a prerequisite to self-sufficiency. While institutions that find themselves proximate to more vibrant financial sectors tend to be more heavily dependent on external contractors, those that operate at or beyond the frontier of finance have a better ability to foster a relative form of autarky. Self-sufficiency is a positive feature of pensions' institutional design and should be

encouraged since it has been showed to significantly improve net return on investments (MacIntosh and Scheibelhut, 2012). However, the results also call for caution reminding the role played by political interferences in undermining the design and performance of government operated institutions. As suggested, one of the major contributor to plans' response to the make-or-buy dilemma is the underlying political incentive to aim at unrealistic rate of returns designed to compensate for insufficient contributions. This not only increases overall-portfolio risk but further pushes public plans to seek costly external help that may actually compound costs in the medium and long run.

4.9 Conclusions

With experts estimating a funding gap ranging from 25 percent to 50 percent of retirement assets totalling close to 4tn USD (Munnell, Aubry and Quinby, 2011), funding state and local DB plans represent a very serious social, political and economic challenge for American society. As a system inherited from a paternalist conception of the welfare-state it today provides benefit payments to over 9.2 million retirees, surviving spouses and dependents. Amidst severe underfunding, these institutions are deeply entrenched in a battle of attrition between conflicting representations of the state and its contested utility in fulfilling missions of public interest. Long overshadowed by its technicality, related lack of appeal to the general public and known associated political costs, the public pension crisis in the United States is starting to make its way up public policy agendas. At a time when states and local governments face unprecedented levels of public debt, tensions between

taxpayers' and public pension beneficiaries' interests are on the rise and elected officials are hard pressed to find viable solutions.

The empirical research presented in this chapter proposed to clarify public pension strategies regarding in- versus outsourcing asset management. It provided hard evidences on the specific contextual factors that may enable those institutions to increase their autonomous capabilities and save on the costs of financial intermediation. As the results have shown, public pension systems remain political creatures that are subject to, and sometimes victims of, broad and conflicting agendas. In conjunction with existing scholarship on the subject, the results unveiled several factors contributing to a better understanding of their institutional design and functionalism. It is the author's hope that these findings can help public sector beneficiary institutions to think more comprehensively about the make-or-buy dilemma, increase their autonomous capabilities, reduce their costs and in the long run, rebalance their assets to liabilities ratio.

Through an original conceptualisation of public pension plans' unique geography, the model and results presented in this research also provide empirical evidence and clarification on concepts debated in economic geography. While the specificities of the organisational field limits inferences, this chapter nonetheless contributes meaningful quantitative findings enhancing existing reflexive work on the spatial distribution of financial institutions relative to financial agglomerations (compare with Clark and Monk, 2013a, 2015; Dixon and Monk, 2014). Through positive science, it provides original findings on the problem of embeddedness in the production of investment returns in relation to insourcing and outsourcing.

In particular, the results provide quantified perspective on the concept of co-location in contracting and hiring financial intermediaries. They show that proximity is a relative concept that can be approximated, in this instance, by a day travel. This is interesting because it validates the enduring importance of physical contact between the parties of asset management contracts. It also calls into question the value of being in the market place as understood as establishing physical presence in large financial centres. On the contrary, the findings indicate that distance in a physical sense has not only become increasingly irrelevant to managing of liquid and efficient asset classes, it may in fact enable public pension plans to internalise their production of investment returns. While the resiliency of highly agglomerated financial spaces may still challenge the thesis of the end of geography, this research provides a real-life instance of institutions that practice extensive “investment at-a-distance” (Clark and Monk 2013a).

Finally, the findings suggest that in a time where technology increasingly provides workarounds physical distance, the centripetal forces that make asset management institutions converge towards financial agglomerations might be better explained by commercial concerns over capital accumulation than concerns over functional performance as measured by net returns on investments. This is cause for optimism as it legitimises the desire of financial institutions with a mission of public interest to become more autonomous; it resonates as a call for future research to not only better understand but also help reshape the balance of power between the industry and its clients.

5. PRODUCING INVESTMENT RETURNS AT THE MARGIN OF FINANCE: A CASE-STUDY BASED ANALYSIS OF A SUCCESSFUL YET FRAGILE TALENT MODEL

ABSTRACT. Financial institutions with an investment function compete over the production of risk-adjusted returns. Talent is a key ingredient of their success. Recognising its importance, financial institutions engage in fierce recruitment battles using compensation premiums to attract and retain top-performing investment professionals. As argued by previous commentators, this poses significant issues to public pension plans, SWFs and other beneficiary institutions which, by virtue of their public nature, have limited resources to staff their institutions. Inspired by the work of Dixon and Monk on frontier finance, this chapter proposes an in-depth review of the human capital of a public pension plan that operates successfully in relative autonomy at the margin of labour markets and IFCs. As argued, strategic geographical and institutional differentiation is key to its success. Omitted by previous commentators, the case-study emphasises the importance of real wages when comparing market compensation driven by IFCs and compensation in frontier institutions. Secondly, it emphasises the importance to leverage the characteristics that make frontier investors distinctively attractive places of work compared to private sector institutions. Ultimately, the case-study exemplifies a highly functional yet fragile model of talent recruitment at margin of finance.

5.1 Introduction

In 2014, Dixon and Monk proposed a significant study investigating the efforts of pension funds and SWFs to conduct their asset management activities autonomously, at the margin of traditional financial centres. Coined by the authors as frontier finance, this process has the potential to significantly reconfigure the map of institutional asset management as we know it. This transformation is institutional and geographical. The institutional component reflects a process of insourcing as traditionally outsourced institutional investors look into building their internal capabilities to manage assets internally and bypass financial intermediaries. The geographical component pertains to the distinctive spatial configuration of a group of institutional investors. Whereas the financial industry is spatially concentrated around a handful of key spaces, a number of pension funds and SWFs, which are growing in size and number, are spatially fragmented and often find themselves geographically dislocated from large financial centres.

This “organisational cum geographical change” (Dixon and Monk, 2014) has been the subject of recent empirical analysis specifically dedicated to public pension plans in the United States (see Urban, 2018a, 2018b). These institutions are particularly well-suited for empirical analysis as they match very closely the theoretical underpinnings of the frontier finance thesis. The United States host four IFCs, namely New York, Boston, Chicago and San Francisco. In an era of fast technological progress and increasing possibilities for remote access to markets, these super-clusters continue to thrive through agglomeration effects pooling unprecedented human and financial capital. On the other hand, state and local plans which owe their existence to a political

mandate tend to be co-located with the public administration they respond to. The geographical spread of state and local administrations means that public pension plans are effectively scattered across to country and more often than not, distant from IFCs.

Corroborating the somewhat limited adoption of the frontier finance model observed by Dixon and Monk (2014), Urban, (2018c) has shown that a majority of the capital accumulated locally by state and local plans still flows towards large financial centres through external investment management contracts. While technology has in part bridged geographical distance allowing timely virtual access to financial information and transactions (Clark and Monk, 2013), operating in a highly complex investment world is still heavily dependent upon human capital, and human capital keeps thriving in spatial proximity. From the perspective of state and local plans, the human capital intensity of contemporary investment processes combined with the centripetal forces of labour markets for investment professionals constitute a significant hurdle. Additionally, geographical distance is exacerbated by a notable gap between market and public sector compensation for financiers. This gap is the result of a fierce competition for talent between private sector financial institutions, and politically motivated downward pressures on government employees' compensation.

Market compensation is, in part, a product of the competition for talent and is the preferred mode of competition for talent between co-located financial institutions. It is determined by comparisons of like-for-like individuals by asset class and function in reference to employee and employer specific roles and responsibilities. Given these dynamics, attracting and retaining human capital with discounted compensation

packages at the periphery of IFCs has proved most challenging (Bachher and Monk, 2012). This chapter argues that state and local plans, and in a larger sense frontier finance institutions including SWFs, pension funds and other beneficiary institutions, should strategically leverage their geographical and institutional differences to shelter from the talent market; differentiation rather than confrontation should be the operative recruitment strategy. The argument is sustained in reference to an in-depth case study of the human capital of a large and remote state pension plan in the United States.

The case-study provides unique and rich insights into Dixon and Monk's frontier finance proposition with specific reference to the geography of labour markets for talent; the organisation examined here is deemed representative of frontier finance institutions for two key reasons: 1) it is located at a significant distance from first and second tier financial centres; the city where it is located does not feature a single local provider of financial services for institutional investors 2) it faces a long standing history of political pressure on public employee compensation and, albeit recent progress, still offers compensation packages significantly lower than peers and industry norms. In spite of these challenges, it is an atypical and inspirational institution. Indeed, the plan has successfully built internal capabilities that allows it to manage over half of its AUM internally. Recognised as one of the largest and best performing public plans in the country, it provides a meaningful model of institution functioning in relative autonomy at the margin of finance. Building on these institutional and geographical features, the chapter proposes a case-study based exploration of the frontier finance thesis. It complements the macro trends observed by Dixon and Monk (2014) and Urban (2018a, 2018c) and contributes original insights

on how asset owners can attract talent to produce competitive investment returns at the margin of finance.

The chapter is structured as follows: the argument is first framed and contextualised in the talent literature. In this first section, I address key theoretical conceptualisations of talent, and review economic geography scholarship on the unevenness of the talent landscape. In reviewing scholarly arguments about where and how talent is situated, I problematize individualistic conceptualisations of talent and link it to income inequalities. In particular, I emphasise the unprecedented income growth observed in the financial industry amongst a clustered class of highly educated-urban workers. This review grounds the challenges faced by frontier finance institutions and sets the stage for the case study. After presenting the methodology, I provide a description of the plan's organisational characteristics and local context. This provides the backdrop to discuss compensation for talent and bring forward the importance of geographical differences in real wages, a topic somewhat omitted in the frontier finance thesis. The second part of the study discusses how the model is driven by virtue of differentiation. In particular, local quality of life and work-life balance are strategically emphasised as talent attraction and retention mechanisms. This is done by contrasting what frontier employers have to offer in contrast to the lived experiences of investment professionals in large financial centres.

5.2 War for talent

The industrial revolution set-off a gradual change in the make-up of labour markets, from physically intensive to cognitively intensive occupations. The shift markedly accelerated in the second half of the 20th century with the transition to a post-industrial economy which was accompanied by increasing demand for workers' "cognitive-cultural" endowment (Scott, 2011). This paradigm shift was first recognised by Drucker who called the new era the "knowledge economy" (1969). In this new economic order, human capital became central to firms' competitiveness. Recognising the increasing significance of this trend in 1997, a group of McKinsey consultants coined the "war for talent" to characterise the relentless competition between firms for top-performing professionals (Michaels, Handfield-Jones and Axelrod, 2001). Scholars have since then produced a rich body of academic research dedicated to the topic.

Economic geographers have proposed significant work casting on the war for talent across national borders, regions and cities. William R. and Sari Kerr proposed to look at migrations of high-skills workers to and within the United States for jobs with high-component of science, technology, engineering and mathematics (Kerr and Kerr, 2013; Kerr *et al.*, 2015, 2016). Richard Florida also produced extensive research on the geography of talent in creative industries emphasising the importance of cities' environmental factors, subcultural capital and local communities in explaining talent clustering (Florida, 2002a, 2002b; Florida, Mellander and Stolarick, 2011; Mellander and Florida, 2012). Interestingly, the attention talent has stirred up has also been met with a considerable lack of clarity on its theoretical underpinnings.

Whereas commentators all recognise the central importance of talent for firms' and agglomerations' marginal productivity, scholars have used the concept interchangeably to mean several things. At times talent has been understood as an input and defined loosely as a combination of natural and learned abilities (Rosen, 1981; Macdonald, 1988). To allow empirical observations, other authors have focused on learned abilities using proxies such as education (Florida, 2002b; Celerier and Vallee, 2015). Clark and Monk, (2013b) have defined talent as a learned ability entailing skills and expertise (see also Clark, 2015) while Gertler (2003) has proposed to explore and emphasise workers' embodied and non-codified tacit knowledge. Finally, talent has also been studied from an output perspective (see for instance Kostovetsky, 2012 on investment managers' individual performance).

Given the increasing attention given to talent in the spatial analysis of economic institutions, its centrality to the productivity of financial institutions, and to avoid further semantic confusion, I propose to briefly review existing theoretical discussions on the topic. Reviewing the talent literature in Human Resources Management (HRM), one will note scholars' consensus on the persisting general confusion about the meaning of talent and the scarcity of thorough theoretical frameworks on the subject (Gallardo-gallardo, Dries and González-cruz, 2013; Thunnissen, Boselie and Fruytier, 2013; Nijs *et al.*, 2014). Addressing the issue, Nijs *et al.*, (2014) propose the following definition of talent:

"Talent refers to systematically developed innate abilities of individuals that are deployed in activities they like, find important, and in which they want to invest energy. It enables individuals to perform excellently in one or more domains of human functioning, operationalised as performing better than other individuals of the same age or experience, or as performing consistently at their personal best".

There are three take-away from this definition: talent is (i) a product of an innate ability (nature) (ii) is developed and expressed through “extended and deliberate practice” (nurture), and (iii) generates abnormal productivity. Meyers and van Woerkom (2014) expand usefully by providing a review of the main philosophies underpinning talent management. Conceptually, talent is either “rare” (only a sub-set of the population has it) or “universal” (everyone is talented) and is either “stable” (nature) or “developable” (nurture). As the authors argue, the war for talent happens when talent is perceived to be exclusive and stable. In this scenario, institutions compete over a scarce and non-renewable resource. As discussed below, it is the dominant philosophy pertaining to labour markets in the financial industry. Since it is the scenario associated with the most intense wage bargaining, it is also at the root of the recruitment challenges experienced by financial institutions that have limited budgetary resources.

This dominant exclusive and stable philosophy is fundamentally individualistic. Here the sum of individual performances make-up collective institutional success. This view is problematic for a number of reasons: (i) it drives inequalities as it puts a premium on individual performance casting a shadow over the rest of the population (ii) it ignores the importance of context (Nijs *et al.*, 2014) and interaction effects (iii) it creates agency problems as incentive structures tend to reward individual rather than organisational success, and (iv) it fails to identify talent’s societal utility (see Thunnissen, Boselie and Fruytier, 2013 for a critique of the dominant managerialist and unitarist view of talent management).

This unitarist view has informed a number of empirical studies on talent in the financial industry. Celerier and Vallee (2015) showed that individual talent, which they estimated as a combination of an individual's alma-mater's ranking, grades and age at graduation, predicts inter and intra industry wage differences. Kostovetsky's (2012) "brain-drain" study measured talent as individual asset manager's investment performance which he predicted by their business school ranking. Philippon and Reshef (2012) research on the financial industry also proposed to look at finance workers' compensation premium, controlling for individual education as well a job complexity. While Kostovetsky (2012) controlled for a number of contextual variables such as fund characteristics, fund styles, and the dot-com bubble, all studies have put an emphasis on individual workers' characteristics while giving less importance to contextual and interaction effects.

5.3 Talent, institutions and regions

Economic geographers have proposed to contextualise talent in a number of ways. In general, the field has viewed talent as a product of specific arrangements; framed within the context of firms, clusters, cities, regions or broader knowledge networks, this perspective emphasises talent as a dynamic, relational and collective feature. It enriches rather than strictly oppose the individualistic perspective just discussed. A stream of dedicated research has emphasised territorial perspectives on the factors dictating the spatial distribution of talent. Stressing enduring agglomeration tendencies, this research lays important foundations to think comprehensively about the challenges of attracting and retaining talent in- and outside of talent clusters.

According to Scott (2011), cognitive-cultural capitalism has been characterised by an unprecedented spatial concentration of cognitive-cultural abilities around key urban spaces. This dynamic has been extensively researched in economic geography and urban economics. One stream of research has been interested in how talent tends to concentrate around geographically delimited spaces. The work of Richard Florida has proposed unorthodox perspectives on the subject investigating the role of lifestyles and subcultural capital of urban agglomerations in attracting a highly-educated population. In addition to supportive economics, city workers were shown to value local community satisfaction. In particular, they value social interactions and schooling quality as well as the aesthetics' of their surroundings (Florida, Mellander and Stolarick, 2011). Diversity, captured through the relative concentration of cultural and nightlife amenities as well as the number of gay households, were also shown to attract workers with higher-education background in and around key creative industrial clusters (Florida, 2002b).

Another stream of research has been interested in the effects of talent agglomeration. In particular, a great deal of attention has been given to the functioning of spillovers in explaining marginal productivity gains of co-located firms and workers. On the subject of knowledge spillovers, building upon the work of Gertler (2003) on the institutional and cultural embeddedness of tacit-knowledge, Cook *et al.* (2007) showed the positive effects of knowledge diffusion on marginal productivity in industrial agglomerations. Storper and Venables (2004) also pointed to the benefits of co-location in their in-depth discussion on the importance of face-to-face contacts. In these accounts, territoriality and proximity are central in explaining talent concentration and productivity. However, with the progress of information technologies, territorial

boundaries are becoming increasingly blurred and replaced by extended notions of networks in knowledge creation and knowledge sharing bridging distant territorial spaces, communities, institutions and individuals. As Bathelt and Cohendet (2014) state: “our understanding of complex knowledge creation processes cannot be restricted to geographically close-by relations or territorially confined contexts”.

The rapid commodification of knowledge through technological advancements has been central to expanding the spatial boundaries of financial institutions. This has led to significant territorial reconfigurations of the financial industry. Parallel to the increase in agglomerative concentration of financial power in a handful of key cities (Wójcik, 2011, 2013), Clark and Monk (2013a) have emphasised the expansion of the geographical reach of contemporary financial institutions as advancements in technology have allowed real time access to information across global financial markets. These structural changes have enabled what the authors coined “investing-at-a-distance”. In this contemporary configuration, investing financial capital in the markets has become increasingly fluid as geographical distance was bridged by technological means, allowing instant access to a global network of market information and financial products. While finance in 20th century was dominated by the West and characterised by territorially contained financial markets and financial centres, finance in the 21st century is resolutely and increasingly global. With the help of technological advancements, financial institutions have increased their reach and seek performance and diversification through a logic of global investment return production (Clark and Monk, 2015).

In this new technological order, the place of production of investment returns has become increasingly irrelevant, at least in theory, as access and a sense of proximity to markets is virtually maintained across time and space. This key structural change has been observed across the financial sector for at least three decades. The 1980's and 1990's were pivotal with the wide-spread adoption of electronic stock exchanges and electronic communication networks. However, the resiliency of IFCs and accounts on the enduring, if not expanding gravitational forces observed in the financial industry have put into question how much territorial dislocation has been triggered by advancements in technology (see Cassis, 2006 for a historical perspective on IFCs, Clark, 2002 on London and Wójcik, 2013 on London and New York). The most notable change so far has been the emergence of new clusters of finance in particular in the Asia-Pacific region, challenging the old-age New-York London axis (Wójcik, 2011, 2012).

Late 20th century technological development and appropriation by financial institutions was intertwined with a significant increase in complexity in the nature and modes of transaction across the financial industry. A notable consequence was the increase in financial jobs' complexity which was met by an increase in financial institutions' demand for human capital. Rather than replacing units of human capital with units of "technological capital" (Grigoriev *et al.*, 2014) the trend has induced a shift in the make-up of the demand for labour in the financial industry. In particular, there was a significant increase in the demand from financial institutions for highly-educated and specialised workers (Demsetz, 1997).

Thus far, one might argue that the enduring spatial concentration of the financial industry is a product of its human capital intensity which is served well by agglomerations that provide deep and large labour pools. It remains speculative at this point but one can expect that as automation grows this tendency may fade and result in further fragmentation of the industry. In a recent report on the impact of automation, Citigroup has forecasted a worldwide net loss of 1.7 million finance jobs over the next 10 years (Arnold, 2017). As the functions of the financial industry are increasingly served through virtual networks as opposed to space contingent human capital, geography is likely to matter if not less, in different ways. The question will be how much, if at all, the war for technology replaces the war for talent.

"It is sometimes suggested that video conferencing, online labour markets, and other uses of communications technology can mitigate the need for talent flows and physical proximity. The evidence thus far is to the contrary, instead emphasizing how the new tools complement global movements instead of substituting for them" (Kerr *et al.*, 2016). I would add that not only they complement each other, technological advancements are also heavily dependent on talent. In finance, this complementarity has already been observed with the increase in demand for investment professionals combining programming and investment skills and expertise. In fact, technology and finance are likely to become increasingly integrated industries.

5.4 Talent, regions and income inequalities

The empirical work of Scott (2009) on the spatial distribution of cognitive human capital in the United States showed the marked concentration of talent around large metropolitan areas. This process of hyper urbanisation of talent has effectively divided the landscape for human capital between talent deserts and talent clusters. This contemporary geographical distribution has exacerbated the old-age, urban-versus-rural income distribution with the emergence of the super-rich of the super-cities. A new class of highly educated urban workers has benefited from superior income growth, effectively driving most of the income inequalities observed over the last decades. Coined as the “creative class”, professionals in management occupations, and business and financial operations, have been showed to largely outpace other sectors in terms of income growth (Mellander and Florida, 2012).

Increases in income disparities are a defining characteristic of the “cognitive-cultural economy” (Scott, 2011), the new economic order of urban capitalism. As the most skills-intensive economy of all times, it has three main characteristics: “(i) digital technologies, (ii) the new division of labour, and (iii) the deeply intensifying role of knowledge and human sensibility in the labour process” (Scott, 2017). Piketty and Saez (2006) extensively documented this class shift in the skewed income distribution characterising the Anglo-American world since the 1970s. In particular, the “working rich” have been showed to have gradually replaced the “rentiers” or capital owners at the top of the income ladder. Kaplan and Rauh (2013) study on the characteristics of the individuals listed as the wealthiest Americans by Forbes 400 showed that while being born amongst the super-rich has had a decreasing importance since 1983, the

educated upper-middle class has breed the largest number of top earners over the last decades.

Accounts on the spatial concentration of a highly-educated urban population have also received industry specific attention. The financial industry in particular, has been the epitome of these socio-economic dynamics. A seminal study of wages in the financial industry by Philippon and Reshef (2012) showed that following the major financial deregulation that occurred in the 1990's, the financial sector's demand for highly skilled workers accelerated dramatically and was accompanied by an unprecedented growth in finance workers' wages. While the marked increase in complexity of financial sector occupations increased the demand for highly educated workers (see Demsetz, 1997 for a general discussion of the "upgrading" of financial sector workers' skills), the authors noted that the education-adjusted wage premium for finance workers reached 50 percent from 1990 onwards. The results suggest that returns on education do not fully explain observed income growth and give weight to claims over rent-seeking behaviour on the part of financiers over the last three decades.

Folkman *et al.* (2007) looked at capital market intermediaries, a newly formed "managerial class", and explained their large wage premium by their ability to absorb a disproportionate share of the wealth they created. Income data distribution showed that the surge in income disparities observed over the last decades can largely be attributed to income growth for private corporation's executives and financial sector workers. The study demonstrated that while manufacturing and retail payed-out an average of 10 to 35 percent of their revenues to employees, investment banking and

private equity reached close to 50 percent. These dynamics were shrewdly depicted by Wójcik's (2012) study on the role of investment banking in the process of securitisation and the hyper concentration of income growth within the securities sub-sector; a phenomena with exacerbated effects in Wall-Street, an urban finance super power.

Interestingly, the relationship between talent and financial compensation has etymological roots dating back to Ancient Greece. A talent was first used as a weight measure equating 25.86kg to denominate precious metals such as gold and silver (Gallardo-gallardo, Dries and González-cruz, 2013). Worth over three decades of full-time work, paid the average weekly salary of the times, a talent was a sum of money reserved only to the most privileged. Through centuries, its meaning has gradually evolved from a sum of money to individuals' natural abilities and learned skills. According to the Oxford Dictionary talent is now defined as a "natural aptitude or skill". While the definition has changed, usage now connects its old and new meaning often correlating monetary compensation with workers' skills or aptitudes. This particular connection between financial compensation and talent has underpinned a significant body of research also characterised by a lack of clarity and consistency in the definition of said talent. In his seminal *Economics of Superstars* Rosen (1981) proposed a demonstration of convex and non-linear rewards on talent to formalise how a small number of agents receive enormous compensation. Albeit elegant in its mathematical formulation, the theory is devoid of formal definition of talent preferring exemplification through a number of references to the performing arts.

Similar criticism can be addressed to Macdonald's (1988) dynamic version of Rosen's model. Both Rosen and Macdonald grounded their theoretical models in the world of art as opposed to the world of work where talent is commonly assumed to be the determining factor of an artist's success. Beyond its convenient normativity, its individualistic conception of performance is also central to its effectiveness. While the world of arts is largely dominated by individuals such as painters, actors, sculptors and musicians, the world of work is dominated by institutions as collections of individuals. While Rosen and Macdonald's demonstrations provide effective theoretical demonstrations of inter-individual income differences, they are problematic as they lack a substantive definition of talent and omit the importance of context. Both issues reflect broader misconceptions as highlighted by the HRM literature dedicated to talent management.

Top talent makes top money. The connection has become so embedded in popular, political and academic discourse that the causality, debatable to start with, has even been reversed in certain studies. Here, compensation premiums have been used as a proxy for talent measurement (see for instance Giannetti and Metzger, 2015; Munnell, Aubry and Sanzenbacher, 2014). At the top of this self-fulfilling prophecy, sits an urban, technologically literate and highly-educated class of workers that have reached managerial positions in a handful of booming industries. Talented financial sector workers are the epitome of these dynamics. For geographically dispersed governmental financial institutions, the high-price tag and the agglomeration of talent in a handful of key cities has prevented them to build their internal resources in any significant way. As institutions governed by democratic processes, pension funds and

SWFs have been unable to follow the rise in compensation observed in the private sector and forced to outsource their investment functions (Dixon and Monk, 2014).

In the United States in particular, salaries for public sector investment professionals have been showed to be the least competitive. MacIntosh and Scheibelhut (2012) showed that compensation in U.S. public pension plans was on average close to 4 times lower compared to Canadian plans, often referred to as the champions of insourcing. As these caps on compensation are a direct reflection of public perception, they are entangled with a number of politically loaded conceptions of the status of public sector workers. Often the target of anti-state rhetoric, government employees have been accused to drain tax-payers' money through a combination of unwarranted privileges and inefficiencies. In the United States, this is paired with increasingly heated debates over the costs of public retirement systems. In an era of ever increasing privatisation, what the debate has systematically missed for fear of political unpopularity is that managing public pension assets in-house could in fact save tax-payers' money.

While the majority of public plans are largely outsourced institutions, the following case-study provides a unique example of a public plan that has, through creative and strategic implementation, built significant internal resources that allows it to produce superior risk-adjusted returns in relative autonomy, at the margin of the dominant institutional and geographical logic of the asset management industry. As such it significantly bypasses financial intermediation, avoids feeding into its high rewards system, improves the funding of its pension liabilities and saves tax-payers money in the process. This case-study offers a deep look at Dixon and Monk's frontier finance

thesis and expand on their proposition by offering original insights on how frontier financial institutions can produce competitive investment returns at the margin. Building upon the theoretical discussions from the reviewed literature, the case-study is framed to focus on the issue of talent attraction and retention at and beyond the frontier of finance.

5.5 Methods

The following analysis is based on mixed-methods encompassing secondary quantitative data and primary qualitative data. The former comprise data obtained from the plan's website, the U.S. Bureau of Labor Statistics (BLS) and internal documents shared by the plan's employees. The latter comprise 37 face-to-face semi-structured interviews with staff members of one of the largest public pension plan in the United States (>150bn USD of AUM). Five respondents occupied executive functions, namely Executive Director & Chief Investment Officer, Chief Operating Officer & Chief Financial Officer, Senior Investment Policy Officer, Chief Risk & Compliance Officer and Director of Human Resources. Twenty-five of the participants were investment staff distributed amongst four asset classes, namely global equity, fixed income, alternative investments and real estate. The remaining seven participants were affiliated with support functions including compliance, risk and performance analytics, and corporate governance. In the spirit of ethical guidelines in social sciences interviewees' names as well as the plan's name and location are kept confidential (Clark, 1998). Prior confidentiality agreements between the author and the organisation as well as with each respondent allowed to dig deep into the

organisation while giving reassurance to participants that their personal and professional interests would be safeguarded.

Fieldwork was conducted on site in the United States between March and April 2016. During that time, the plan provided open access to the building and a personal desk in an open space regrouping the plan's executive functions. This allowed to engage in a number of informal conversations with employees adding to the richness of the data collected during set interviews. Each of the 37 semi-structured interviews lasted between 35 and 60 minutes and were recorded and transcribed in full with the exception of 6 participants who declined the use of a recording device. The results presented hereafter are based on close examination and analysis of the transcripts supplemented with hand-written notes collected while attending 6 group meetings as an observer. These meetings pertained to the governance of the organisation, including a monthly meeting with the board of trustees and the bimonthly Investment Advisory Council meeting.

The interviews focused on the challenge faced by distant public pension plans in attracting and retaining the required human capital to meet their investment objectives. They were directed to bring forward respondents' perception of their employer's compensation policies, location, governance, and organisational culture. All interview transcripts were analysed iteratively and supplemented with a number of secondary data gathered prior and subsequently to field work; these included notes taken during and after the interviews, internal documents, publicly available information on staff compensation, investment performance reports, transcripts of past official meetings, CPI data and labour market statistics.

Taking into account the limitations of qualitative methods in the social sciences, I chose to use a triangulation approach (Jick, 1979) in order to dynamically assess the validity of the findings, confronting spoken lived experiences with secondary statistics. This method is based on the idea that qualitative and quantitative methods are complementary rather than mutually-exclusive. The importance of both financial compensation (uni-dimensional) and job-satisfaction (multi-dimensional) in this research project makes it particularly well suited for such an approach. The data were then further analysed and tested in light of existing research on the topic.

5.6 Talent and compensation in a frontier pension plan

Plan description

The plan studied in this research is a DB pension system covering state and local government employees. It collectively manages retirement assets on the behalf of over one million participants. It only serves an investment function. The administration of benefits is devolved to a separate entity; this contrasts with other plans that do both under the same umbrella (see CalPERS for instance). AUM total over 150bn USD, of which just under 50 percent are managed internally, primarily in public domestic markets using passive strategies. The other half is invested through external providers using a blend of internal expertise and oversight, and external consultants. Using a hybrid approach requires extensive skills and expertise in both external contract management and in asset-class specific investment management. This approach is associated with significant needs in technological infrastructure and human capital representing a broad range of competences.

The plan has a strong performance history, both in terms of funding ratio and net return on investment. It was fully funded prior to the GFC and reached 85.6 percent in 2015. Its investment performance caught the attention of the media and industry experts. The plan as well as key employees were awarded several investment management prizes. The exemplarity of the plan's performance and its hybrid approach mixing internal and external investment management makes it particularly well suited for a case-study on human capital in public pension institutions. The plan is headquartered in its state's administrative capital and all its investment operations are conducted from there. This configuration highlights that in public sector pension management, political proximity primes over financial markets proximity. It constitutes a geographical particularity commonly observed across public sector institutional investors¹⁵. This particular "organizational cum geographical" situation is central to the frontier finance thesis (Dixon and Monk, 2014). As a result, the set of threats and opportunities to recruit talented investment professionals are significantly different to those found in large financial agglomerations.

The plan is located in a metropolitan area regrouping 4 counties totalling a population of 350'000 people. The home city of the plan hosts an unusual number of higher education institutions regrouping a total student population exceeding 70'000 people. Its top local public university is ranked in the 3rd decile nationally. The business school, which has a total enrolment of just under 6'500 students, offers a wide range of

¹⁵ To my knowledge, only a handful of state plans have ventured into opening small satellites offices in large financial centres with various degrees of success (see for instance Texas Teachers, London 2014).

graduate and undergraduate degrees in fields such as accounting, finance and risk management as well as dedicated PhD and MBA programs. These local programs represent an important recruitment pool for the plan.

The closest IFC is located approximately 950 miles away. It can be reached in just under 4h by air, including a stopover. The closest large regional financial centre is approximately 250 miles away and can be reached with a 1h direct flight. Locally, there are no significant providers of institutional asset management services. This particular geography is quite typical of state and local pension plans in the U.S. and has two major consequences. First, all the outsourced activities of the plan have to be run through distant providers. Given the considerable size of the plan, it poses only minor inconveniences, since external providers are willing to travel to the plan. Second, from a recruitment perspective, the absence of a specialised local labour market means employees must (i) be recruited locally from other lines of business and be trained internally (ii) come straight out of college and be trained internally or (iii) be recruited nationally. While being “the only gig in town” (as one respondent puts it) constrains the recruitment process, it may also play in favour of retention as changing job entails a process of relocation. This contrasts with investment professionals in IFCs who can shop potential employers within a single building or block.

As of 2015, the plan employed a total of 199 full-time employees. All were based in a single building located just a few miles away from the state’s capitol. The workforce can be divided into 2 broad categories according to their function in relation to the investment process. The executive and support functions employed 70 percent of the

human resources with 139 full-time employees. The investment functions employed 30 percent of the human resources with 60 employees. A breakdown of each of these two groups is presented in Table 5.

Table 5. *Breakdown of human resources.*

| | Headcount | Group | Total |
|--|-----------|-----------------------------|-------|
| CIO & ED office | 5 | | |
| Chief operating office | 6 | | |
| Inspector General | 1 | | |
| Investment policy and asset allocation | 3 | | |
| Risk management and compliance | 19 | | |
| Financial operations | 17 | Executive and support staff | 139 |
| Audit | 7 | | |
| Investment programs and governance | 4 | | |
| General counsel | 12 | | |
| External communications | 2 | | |
| Human resources | 6 | | |
| Accounting and admin | 32 | | |
| Information technologies and data centre | 25 | | |
| Global equity | 16 | | |
| Strategic investments and private equity | 14 | Investment staff | 60 |
| Fixed income | 17 | | |
| Real estate | 13 | | |

Source: author

The compensation gap

Market compensation is, at least in part, a product of the war for talent and is central to on-going debates on the attraction and retention of talented investment professionals. There are however subjective and objective contentions in this respect. Principles of accountability and transparency of government significantly constrains public plans' compensation policies. Under these control mechanisms government employees' compensation is a product of the public's subjective appreciation of fairness. This contrasts with the dynamics of free market competition. These control mechanisms put public plans at a disadvantage as they must compete with private sector institutions to recruit and retain talented investment professionals with half the resources.

The home state of the plan reviewed in this chapter has strict transparency laws granting public access to a wealth of information about government resources and activities¹⁶. As part of this initiative, each government employee's annual compensation is a matter of public record and can be accessed freely over the internet. Notwithstanding the healthy limits it places on the use of public resources, it also tends to feed controversies on the fairness of public sector workers' compensation amongst the public and politicians. Driving the political debate are fundamentally conflicting beliefs over the value of public service. In this instance, the historically conservative, pro-private sector and anti-state political climate has placed significant

¹⁶ My visit to the plan, as a higher education researcher, is also a matter of public record.

downward pressures on compensation and benefits awarded to public sector workers. One should note that this dynamic is largely tied to current public sector accounting practices that charge employees' compensation to states' operating budget rather than charging the pension fund's assets directly.

Considering the exuberance observed in private sector financial institutions, one may argue that mechanisms of transparency and public accountability have had the merit of placing healthy limits on compensation that are based on a democratic representation of fairness. Considering that the financial sector has disproportionately contributed to rising income inequalities (Philippon and Reshef, 2012) there would be something fundamentally contradictory for an institution with a public service mission to uncritically perpetuate such inequalities through its own practices, let alone with taxpayers money. Now as it is often the case, principles fall short of practicality. As market forces prevail, public plans have had persisting difficulties to attract and retain the human capital they need to function without resorting to privatisation. Ironically, outsourcing has meant paying private sector investment fees going directly into feeding that same exuberance. One will note here that this goes comparatively unnoticed by the public as investment expenses are charged directly to pension funds' assets. Since taxpayers are ultimately liable for public pension plans' assets they are likely to pay for external investment expenses, only in less obvious ways, through increased contributions or a bailout if assets were to fall short of liabilities.

Over the fiscal year 2014-2015, the plan managed investments roughly equally divided between internal and external management. According to the plan's budgetary report,

35mn USD in total were spent on internal resources. The most important spending accounts included salaries, information services, health insurance and rent. A total of 479mn USD was spent on external management fees. Spending on external resources were close to 14 times spending on internal resources. This is in line with Clark and Urwin's (2008) who estimate that external to internal costs average 10:1. Although the comparison is based on a slight oversimplification and would merit more rigorous cost allocation that falls beyond the scope of this research, it exemplifies the argument quite powerfully. Putting pressure on salaries in a way that prohibits the build-up of internal resources likely costs significantly more money to tax-payers than accepting to close the gap between public sector and market compensation. The key problem is the complexity of the mechanisms at play. For a lack of a better understanding of the economics, opinions tend to crystallise around nominal wages and absolute comparisons.

For the year 2014-2015, total salary expenses were just under 16mn USD. Salaries ranged from 23'600 USD to 389'000 USD with an average and median compensation of 86'000 USD and 72'500 USD respectively. Investment staff's salaries ranged from 70'400 USD to 220'000 USD, with an average and median compensation of 126'918 USD and 127'750 USD respectively. All 37 interviewees were asked about the perceived fairness of their pay. While most employees felt they were compensated fairly they also noted an opportunity cost associated with their current situation. Top management expressed serious concerns over the recruitment and retention of key employees due the current budgetary constraints. Middle and top management as well as most the investment staff tended to evaluate their pay gaps relative to comparable private sector functions in major financial centres. On the other hand,

employees representing support functions tended to perceive internal differences in pay as more significant. All acknowledged the quality of the benefits associated with their employment situation, while also highlighting several extra-financial advantages that pertained to the geographical location of their employer as well as its qualities as a workplace; this is treated more extensively in the second part of this analysis.

The structure of incentive was also a source of concern and, at times, dissatisfaction amongst the investment staff. While it is common practice in the private sector to incentivise investment managers with convex rewards, the plan had only a brief experience with an incentive compensation program which was pulled-back under political pressure after the GFC. At the time the interviews were conducted a new incentive compensation program was under-approval. The key feature of the new program was that the incentive structure would emphasise total fund performance. This differs from private sector's practice that puts large premiums on individual performance. Rather than reward short-term intensity of effort, this incentive structure supports long-term collective value creation. This was strongly felt to be part of the larger organisational culture when attending group meetings where asset class heads openly shared knowledge and expertise with each other. It contrasts with accounts from interviewees with private sector experience where individual performance rewards tended to produce a silo mentality putting a strain on communication between employees and teams.

Another factor that was stressed by most of the respondents was the favourable local cost of living. This is important to nuance the argument about compensation gaps and

is somewhat omitted in the frontier finance thesis. Market compensation in the financial sector is driven by a handful of clusters located in major urban agglomerations. Consequently, nominal wages observed in the industry also reflect higher costs of living associated with living in and around such locations. Evaluating the pay gap between frontier and main-street investment professionals based on nominal wages gives an inflated idea of the magnitude of the problem. Because frontier financial institutions are generally located in small to mid-size cities, they are able to offer lower nominal wages that remain competitive in real terms.

Table 6 helps illustrate the argument by comparing average nominal and real wages for the occupation of Financial Manager, as defined by the Bureau of Labour Statistics, across five metropolitan areas. Four of the metropolitan areas host the country's leading IFCs. Local compensation and cost of living are compared to the metropolitan area in which our frontier organisation is located. Compared to our reference metropolitan area, New York's pay premium in nominal terms is as high as 74 percent. On the other hand, living in New York city excluding rent is estimated to be 36 percent more expensive relative to our reference metro area, and 96 percent more expensive including rent.

Table 6. *Nominal and real wages comparisons for IFCs and a frontier location, 2015.*

| | Plan | New York | Chicago | Boston | San Francisco |
|---|---------|----------|---------|---------|---------------|
| Financial Manager*, metro area, mean annual wage in USD (1) | 105,270 | 183,030 | 130,620 | 138,220 | 170,290 |
| Financial Manager*, indexed to plan's city level | 100.00 | 173.87 | 124.08 | 131.30 | 161.76 |
| Nominal wage premium | - | 74% | 24% | 31% | 62% |
| Cost of living index, city level (2) | 100.00 | 135.61 | 114.60 | 121.24 | 134.44 |
| Cost of living index, incl. rent, city level (2) | 100.00 | 189.75 | 136.87 | 158.82 | 212.37 |
| Real wage premium (excl. rent) | - | 38% | 9% | 10% | 27% |
| Real wage premium (incl. rent) | - | -16% | -13% | -28% | -51% |

Financial Manager: plan, direct, or coordinate accounting, investing, banking, insurance, securities, and other financial activities of a branch, office, or department of an establishment (BLS definition)

Sources: (1) <https://www.bls.gov> (2) authors' calculations based on <https://www.numbeo.com>

The comparison including rent is expected to be overinflated since CPI data are only available at the city level thus capturing the cost of renting in New York City. In practice New York City workers are likely to commute precisely to avoid paying excessive rents. One can expect the prices of consumer goods and services excluding rent at the city level to more stably reflect the cost of consumption of New York City workers regardless of the location of their household. With these limitations in mind, one can then derive estimates of the real wage gap between New York and our

reference metro area subtracting the premium in costs of living to the premium in nominal wages. Excluding rent, the pay premium in real terms in New York is 38 percent, compared to 74 percent in nominal terms and at a discount of 16 percent including rent.

Given the limited data availability and accuracy, generalisations may be unwarranted at this stage. Nonetheless, the results point to significant differences in costs of living between IFCs and frontier locations. They deserve further attention as they may help better explain compensation differences than the private-public sector comparisons so far emphasised. These findings raise several interesting caveats in like-for-like comparisons between institutions across locations. For instance, MacIntosh and Scheibelhut (2012) global survey of 19 pension plans' employee compensation packages provides insights into large national differences but gives no consideration to local cost of living. Besides differences in local costs of living, a pay gap is likely to persist between private and public sector financial institutions because of distinctive organisational expectations about being at-work and work-life balance. These considerations came-up repeatedly during the interviews and are discussed in more details in the following section.

Expectations of being at work and work-life balance

Close iterative examination of the transcripts allowed to identify several perceived qualities of the workplace deemed relevant to frontier financial institutions. In general, these stand in sharp contrast with industry norms and pertain to institutional

and geographical differences. At an institutional level, they relate to distinctive public sector norms and the specific mandate of DB pension plans relative to other investment management institutions. At a geographical level, these differences account for local quality of life, between frontier locations and large financial centres. As I discuss these characteristics, I propose to revisit the typology of frontier finance employees proposed by Bachher and Monk (2012). This provides a cross-validation of their findings and adds a layer of thicker descriptions to their original proposition of the greens, the greys and the grounded. I here focus on interviewees that have investment management responsibilities as the qualities and education sought after for investment functions tend to be fairly homogenous and thus well suited for generalisation. This leaves out support functions that regroup more heterogeneous competences in areas such as legal, accounting, performance analysis and are less suited for comparisons and inferences.

As this research was first stimulated by ongoing debates about the ability of public sector pension plans to recruit and retain talented investment professionals under budgetary constraints, it was natural to ask interviewees their perception of the issue. Interestingly, while most expressed concern over financial compensation, none of the employees expressed concerns about the competences of their co-workers and the great majority thought that their respective department was adequately staffed. All the respondents seemed to think that their professional interactions with their co-workers were supportive of their productivity as well as that of the organisation. This suggests that in spite of perceived recruitment difficulties, the organisation does not suffer from a quality gap in human resources. This is objectively supported by the outstanding performance of the plan. These subjective and objective measures help

nuance the narrative on talent in public pension plans. In particular, they emphasise the value of extra-financial incentives in the recruitment and retention of key employees.

A fundamental characteristic of DB pension plans as asset management institutions is their strict investment focus. This was repeatedly stressed by interviewees as a clear advantage: "...you spend no time marketing because you have a captive client so you can focus on asset management and that's what drew me to it." Industry norms usually have investment managers dividing their time between generating investment returns and attract and retain investment capital. Since pension plans have no hold over assets' in- and outflows - which depend upon factors such as employment, demographics and public policy - their investment managers dedicate their time and energy to investment related activities. This is also important from a locational perspective and explains the premium put by financial institutions that do compete over capital inflows as they find it more valuable to be co-located in agglomerations that pool financial capital. However, co-location or at least nurturing regular presence in financial agglomerations, should not be downplayed as it is central to the selection, negotiation and oversight of investment management agreements. Unfortunately, all too often public pension plans tend to wait for investment managers to come to them instead of being proactive in selecting and meeting external managers.

From a recruitment perspective, pension plans can focus on skill-sets relevant to investment management without concerning themselves with skills pertaining to client relationship management. Investment professionals who have jobs that involve

buying and selling investment products for a profit are often passionate about dealing with financial markets and can be somewhat reluctant to engage in marketing, which is often perceived as an ancillary chore. The love for the job can thus play in favour of both parties. Speaking of colleagues, one employee stated: "...they like to win, taking risk and putting trades. That's what I like to do. I love investing, to me it's the best job ever, it would be nice to make more money like I used to, but that's how it is".

In general, employees emphasised the work-life balance enshrined by public sector institutions and contrasted it with private sector norms and practices. Most reported stable working hours of approximately 40h/week. These stand out against interviewees' recollection of private sector experiences as well as other accounts on the topic reporting 100h weeks as common practice (see Ho, 2009; Michel, 2014 for detailed ethnographic analysis of investment bankers all-consuming work practices and culture). This simple yet clear delineation of expectations about being-at-work leaves room for workers to live balanced lives outside of the work place. "I took a week visiting [*large private sector asset manager*] a year ago and talking to the employees they are expected to be in the office at 5am and lucky to be out by 6pm; it's a grind. Trying to have hobbies or raise a family in that kind of environment would be very hard."

The respondent further added: "I have been married for a year, we are expecting our first child in July so when the baby comes I don't feel pressure; I know it's been a big political topic with paternity leave and Zuckerberg taking time off and that's something I wouldn't have working away from the public sector". While supporting life outside of work, these delineations were not reported to come in conflict with the

productivity of the organisation; most employees reported having to do overtime and bring work to their homes on occasions but always with a sense of necessity rather than cultural expectations (compare with Michel's 2014 reported "self-entrapment" in investment banking in Wall Street). Short local commutes were also reported as supporting work-life balance and contrasted with those of finance workers in large financial centres.

The 27 investment staff members interviewed were mainly experienced, averaging just over 20 years of work experience. This is in line with Bachher and Monk's (2012) *Greys* from their typology of frontier investment professionals. Experience was skewed towards public sector exposure, with the staff cumulating twice as much public than private sector experience. A third of the 27 investment staff members interviewed had more than 10 years of work experience in the private sector. All have worked in first-tier (New York, Chicago, Boston and San Francisco) and second-tier financial centres (Atlanta). Interestingly, all were relatively recent hires (less than 8 years). This combined with their personal stories suggested that they were largely recruited on the back of the GFC. This contrasts with Bachher and Monk's (2012) proposed "settle-down" or "give-back" motives to work in public pension institutions. Indeed, sustained contractions of labour market can be an opportunity for public plans to attract talented private sector workers at a discount. However, there are significant risks of losing these more mobile workers as the market picks-up. Ideally, the long-term investment objectives of pension plans should be matched by long-term employment relationships.

For early career stages, public pension plans can offer an appealing career boost. As noted by Bachher and Monk (2012), entry level compensation gap for the *Greens* tend to be lower and the opportunities for progression much higher in public plans compared to private sector. One young portfolio manager stated: “for someone with my experience, it would be next to impossible to have my own portfolio running my hands on the assets like I do here. With 5 years’ experience, I don’t think I would be more than a junior mid-level analyst, so I would only have an input role on the portfolio rather than running it like here.” The local presence of major universities provided an important recruitment pool for the plan. Although, this local recruitment and internal training strategy represents an opportunity for employees, it comes with mid to long term risks for the employer. Indeed, as entry level employees rapidly gain experience, the opportunity costs of staying in the public sector increases significantly over time.

There were few young and recent hires at the time of the interviews. However, a third of the investment staff members interviewed have always been working for local public sector agencies and the overwhelming majority made their careers in the same organisation. There were several past stories of accelerated early career development and cross-overs between asset classes and investment functions. At the time of the interviews, the data available on the plan’s human resources suggested that recruiting younger employees to be trained in-house has been in part replaced by tactical recruitments on the back the GFC. While tactical recruitment strategies focusing on the *Greens* and the *Greys* may represent good opportunities for public plans, they must remain aware of the flight-risks.

Employees' personal ties to the organisation's local environment also functioned as an important retention mechanism. This echoes Bachher and Monk's (2012) notion of the *Grounded*. As public pension plans are mostly located at or beyond the frontier of finance, local employment alternatives are usually limited. Changing job then almost systematically entails a relocation process. This can constitute a significant hurdle to those with personal ties to the region. As one respondent puts it: "The other thing is your family situation, if you have kids that are below middle school, say below 12, then you can move very easily, if you have kids that are between 12 and going off to College, much less likely, because the social and family disruption that comes from that can be permanently detrimental and people know that. That's a key factor." This segment of grounded employees constitutes the main recruitment pool for the plan. Out of the 27 investment staff members interviewed, 16 were originally from or grew up in the region. All attended local Universities and the vast majority disclosed having some form of family ties to the region.

5.7 Conclusions

"Like all other contracts, wages should be left to the fair and free competition of the market, and should never be controlled by the interference of the legislature". This quote from David Ricardo's *On the Principles of Political Economy and Taxation* (1817) reflects early 19th century critical thinking of free market advocates. At that time, labour markets were largely dominated by low-skills occupations. While inequalities were important, their underpinnings were substantially different and income disparities not as important as they are today (see Williamson, 1976, 1980 for comparative historical perspectives). Two hundred years marked by the industrial revolution, the

rise of cognitive capitalism and free market competition and the premium put on high-skills workers has led to extraordinary differences in wages across nations, regions, cities and industries. Amidst these broad structural socio-economic changes, financial sector workers have come to constitute a class of highly rewarded, educated, and urban professionals clustered around a handful of key financial centres around the world. The marginal productivity and scarcity of the most talented has intensified competition between financial institutions to attract what other commentators have called “star-performers”. This war for talent has largely been fought and won using financial incentives and has led to serious wages inflation.

In parallel, asset owners which have traditionally outsourced their investment functions have come to question the added-value of financial services with particular reference to their high costs which are largely a product of said wages inflation. In this paradigm, returns to talent were reaped by star-performers and their employers, leaving clients somewhat out of the equation. This has provided a rationale for institutional investors such as SWFs, pension funds and other beneficiary institutions to retake responsibility for their investment process by insourcing some of, if not all, their investment functions. However, the inability of these institutions to match private sector compensation has prevented the trend to take-off in a significant way.

As I have argued in this chapter, these prohibitive restrictions have often given no other choice to asset owners than to maintain their relationships with private sector providers. Ironically, this had the effect of increasing the costs of pension institutions to taxpayers as their money went into feeding a high rewards system promoted by private sector asset management institutions. As shown in this case study, spending

on external resources are close to 14 times spending on internal resources. If the plan studied here were to double each employee's salary which currently amount to 17.2mn USD, the ratio of internal to external costs would still be 1:9. This is a serious issue and should not be taken lightly by legislators who owe their constituents and taxpayers efficient use of public resources.

Elected representatives, trustees of beneficiary institutions, politicians and taxpayers at large should find a balance between adapting to the reality of labour markets for talented investment professionals and design differentiated recruitment strategies consistent with the objectives of their funds. To meet the latter objective, the case-study emphasised the importance for frontier investors to leverage their local socio-economic characteristics as well as their distinctive organisational culture. Because of the intense competition for talent amongst co-located private sector financial institutions, public plans have an interest in sheltering from the market rather than confront it directly. In this respect, since they are likely to lose in like-for-like comparisons, strategic differentiation is key. One such differentiation should be to emphasise the competitiveness of their compensation packages based on real wages. This is important and was omitted by previous commentators (compare with Dixon and Monk, 2014; Bachher and Monk, 2012; Clark and Monk, 2014). Additionally, frontier investors should cultivate and emphasise the characteristics that make them attractive places of work. These may include shorter commutes, clear delineation about being at work, collaboration, and a shared responsibility over the funds' long-term performance.

In spite of difficult circumstances, the case study exemplifies a highly functional yet fragile model of insourcing. As shown by its strong investment performance and the recognition of the fund by its peers, employees and trustees, there are ways of functioning in relative autonomy at the margin of financial markets, but it takes a good deal of strategic thinking and creativity. First and foremost, it requires to focus internal resources where they can produce risk-adjusted returns in a cost-effective way. This is done differently across asset classes. In this model, direct investment is focused on scalable asset classes, primarily domestic public equities and fixed income. On the other hand, the model delegates less scalable and complex asset classes such as hedge funds and private equities to external contractors assigning to key internal investment professionals the responsibility to focus on mandate selection, negotiation and oversight.

Recruitment is the most fragile component of the model. The plan primary strategy has been to recruit locally and train internally. Here, talent is mainly built inside the organisation. On one hand, it is an advantage as it allows to train skills, build expertise and cultural standards that are tailored to the needs of the institution. It also tends to be cheaper in terms of compensation but comes at the costs of training on the job which should not be underestimated. These can be justified for as long as the employees can be retained within the organisation. There is however a significant risk to lose key talent as they gain specialisation through experience and become more valuable to private sector institutions that can afford to double their salaries. The second recruitment strategy has been to recruit key investment staff with significant private sector experience on the back of the GFC. On the upside, these individuals come with specialised skills and experience and require little specific training. On the

downside, these employees may experience and provoke culture clash and may be at greater flight risks if the labour markets were to pick up again.

Last but not least, one should note the critical importance of top management in navigating the challenges exposed here. Top executives and CIO positions in public investment agencies such as pension funds and SWFs require a very specific and scarce kind of talent. These leaders should have the skills and expertise similar to those required in other large investment funds including fund-wide strategic thinking, expertise across asset classes and personnel management skills. In addition, and not to be taken lightly, these leaders also need to have a deep understanding of local political dynamics and be skilful at navigating interferences. To my surprise all the participants emphasised a complete absence of political interferences in their day-to-day jobs. One respondent with 30 years of employment with the fund recalled that it had not always been that way and was largely depended upon top-management's skills. Indeed, this notable feat was unanimously attributed to the work conducted upstream by the Executive Director & CIO of the plan whose recognised investment expertise and insights in local politics allowed to establish its organisation as an investment institution within the state apparatus and skilfully protect it from becoming a political token. As one employee put it: "this is not a normal public agency, we really are an investment firm that is under a public umbrella".

6. DIMENSIONS OF INSOURCING IN STATE AND LOCAL PLANS

ABSTRACT. This chapter offers an in-depth discussion of insourcing amongst state and local pension plans. Recognising the untapped potential of insourcing to improve the performance of beneficiary institutions, the chapter also gives weight to the significant contextual differences that exist across a varied landscape regrouping close to 4'000 individual public plans. Using a triangulation approach based on exiting scholarship, close-dialogue and quantitative data, it proposes and develops six conceptual dimensions of insourcing. These dimensions include: cash-flows, economies of scale, asset allocation, compensation, location, and fiduciary duty and oversight. These dimensions are identified for the importance they play in managing internal assets effectively and are discussed considering how they vary across institutions. Not a best-practice chapter, it is rather a proposition of analytical building-blocks. It offers deep insights to think comprehensively about insourcing across institutions embedded in different local contexts. In particular, the chapter gives attention to variations in financial economics, local politics and regulation, governance, and geography.

6.1 Introduction

Since 2001, state and local pension plans have been facing severe underfunding. By 2008, Novy-Marx and Rauh (2009) estimated that underfunding was close to 3.23tn USD. While financial markets' upturn supported a partial recovery, a nationwide pension crisis is still looming. At stake are the potential failure of these institutions

which could precipitate the failure of state and local governments. In 2014, state and local plans represented the interests of 19.7 million Americans including 14.3 million active participants, 5.6 million inactive members and 9.6 million retirees who were distributed 253bn USD in retirement benefits (Brown, 2016). Notwithstanding costs to taxpayers, the direct social and economic consequences of the failure of these institutions would be devastating. Aside from the numerous local particularities in underfunding (Munnell *et al.*, 2014) and process (see Clark and Monk, 2014 on investment management agreements), commentators have noted commonalities deemed instrumental in improving their current situation. In particular, Munnell, Aubry and Cafarelli (2015) have stressed the importance of adequate contributions and investment returns.

However, as argued by Clark and Monk (2017) plans can be “can be held hostage to local interests”. For example, in recession times, the fall in tax revenues have impelled state and local governments to significantly reduce their contributions in an effort to balance their use of public resources (Munnell, Aubry and Cafarelli, 2015). Commentators have also noted that recent years’ difficult fiscal conditions have pushed governments to resort to privatisation to reduce the costs of public administration (Keefe, 2012). As noted by Clark and Monk (2013) the investment functions of public pension plans have traditionally been largely outsourced to private sector asset managers and consultants.

There are however a growing number of studies showing that beneficiary institutions such as pension funds and SWFs can significantly reduce costs and improve net investment performance by insourcing their investment functions. Gordon Clark and

Roger Urwin, two pension experts, estimated in a global study on pension plans that external management costs are in the order of 10 times greater than internal management costs (Clark and Urwin, 2008). A study sponsored by the Maryland Public Policy Institute has shown that state plans paying the highest Wall Street fees were also consistently under-performing their peers (Hooke and Walters, 2013). A global empirical study led by CEM Benchmarking on the insourcing strategies of pension plans showed that, on average, lower costs on internal capabilities produced a 36 basis points increase in net added value for every 10 percent increase in assets managed internally (MacIntosh and Scheibelhut, 2012).

While evidences point to the clear benefits of insourcing, implementation has not been a straightforward process. While a restricted number of beneficiary institutions have embraced the model with significance and success, the majority have remained largely outsourced. This is apparent in several studies. Dixon and Monk's (2014) global study of institutional investors shows evidences that, albeit grassroots movements of insourcing amongst public pension systems and SWFs, assets keep flowing towards private sector contractors largely based in and around IFCs highlighting the enduring centralisation and agglomeration of investment service provision. Another empirical study dedicated to state and local plans showed that over the period of 2006 to 2012, the majority of public pension assets were consistently outsourced to private contractors (Urban, 2018c).

This contrasts sharply with Canadian pension plans that have long been recognised by scholars, experts and medias as the champions of insourcing (see for instance Bachher and Monk, 2012; The Economist, 2012). Commonly referred to as the *Canadian*

model, the approach has entailed an extensive use of internal resources to keep control over investment costs and aggressive investment strategies with significant allocations towards alternative investments (The Boston Consulting Group, 2015). While the results of Canadian plans deserve recognition, the replicability of their model across different political and economic contexts is questionable.

In the United States, pension experts have emphasised that the gap between public pension investment managers' compensation compared to international peers and national private sector financial institutions represents a major impediment to insourcing (see for instance Ambachtsheer, Capelle and Lum 2008; Clark and Monk, 2013). However, compensation is only one part of an intricate puzzle. For instance, recent research suggests that differences in plans' local environment in relation to access to specialised labour markets and external contractors impacts public plans insourcing strategies (Urban, 2018a). Whereas financial institutions traditionally thrive in close spatial proximity, the devolvement of the management of state and local governments' pension assets to local government institutions means that each state and local pension plan is embedded in a specific local political, economic and regulatory environment.

With close to 4'000 individual public pension plans accounted for by the U.S. Census, "the local dominates the global" (Clark and Monk, 2014). As a consequence, insourcing has to be considered in light of the possibilities to implement global investment functions from varied local environments. Acknowledging this fundamental characteristic, this chapter aims to discuss insourcing amongst public pension plans along six dimensions. Each recognises contextual differences allowing

to address the issue dynamically across distinct institutions. In that sense, this is not a best-practice chapter proposing a blueprint for insourcing but rather a proposition of analytical building-blocks to evaluate its implementation across varied local environments.

These six dimensions stem from a larger research project on insourcing and outsourcing amongst state and local plans. They are based on empirical results derived using mixed-methods combining qualitative and quantitative data. The qualitative insights were collected over the last 4 years. These included the analysis of public records, including: plans' websites, data collected by non-profit organisations, and over 50 semi-structured interviews with public pension executives, investment staff, private sector investment managers, consultants and pension experts. Original quantitative data on state pension plans' insourcing strategies were also collected and analysed in two separate research projects (Urban, 2018a, 2018c); these supplement and cross-validate the qualitative insights allowing to build a comprehensive understanding of public pension plans' challenges and derive the dimensions in specific reference to insourcing. By way of exemplification, the dimensions are here discussed in light of selected case studies and secondary quantitative data.

The chapter is organised as follows: first it proposes a brief review of the solutions so far considered and implemented to attend to the underfunding of state and local pension plans. Insourcing is then introduced and emphasised as an important yet under-appreciated solution. The argument is problematized in reference to the large differences in the functionalism and organisational arrangements of state and local plans. The second section sets the stage for the core of the chapter. In particular, it

proposes to revisit state and local plans' heavy political underpinnings, lax regulatory environment, and varied governance structures. The third and main section unpacks the six dimensions of insourcing. These dimensions include: cash-flows, economies of scale, asset allocation, compensation, location, and fiduciary duty and oversight. They are discussed individually as well as in relation to one another and exemplified with case studies and secondary quantitative data analysis.

6.2 Solving state and local plans' underfunding

Albeit a timid recent recovery, public pension plans in the United States still suffer the costs of two shortly spaced financial crisis (.com and GFC) and difficult budgetary conditions. Whereas in 2001 the majority of public pension plans were fully funded, the following years saw a steady increase in unfunded liabilities. According to Munnell, Aubry and Cafarelli (2015) the reasons explaining the downfall are straightforward. Overall, investment returns fell short of expectations and employers' contributions were inadequate. Along the way, 2013 marked the year of financial markets' recovery. The S&P500 went speedily past the symbolic 1'500 mark, corresponding to its peak value of March 2000 and October 2012 before its historic downfalls of 48 and 56 percent corresponding to the .com bubble burst and the GFC. Since March 2000, the S&P500 has gained over 60 percent in total return. Pension funds on the other hand have been much slower to recover, averaging only 71.4 percent in funded liabilities in 2016 compared to 102.1 percent in 2001 (The Center for Retirement Research at Boston College, 2016).

Matching Annual Required Contributions (ARC) would help significantly the recovery process. However, given the overall budgetary situation of state and local governments and the political costs associated with using taxpayers' money to fill extensive gaps in public employees' pensions, it is unlikely to happen. Some states have ventured into uncharted territory looking into the possibility to alter the benefit structure promised to current members. To that effect, amidst precarious public finances, the state of Illinois voted an Assembly Bill in December 2013 to override constitutional protection over past pension promises in the interest of safeguarding welfare and public safety. The bill, immediately challenged by lawsuits, was suspended by the circuit court and eventually rebutted by the Supreme Court. The final ruling stated: "...the funding problems which developed were entirely foreseeable. The General Assembly may find itself in crisis, but it is a crisis which other public pension systems managed to avoid and (...) it is a crisis for which the General Assembly itself is largely responsible" (The Supreme Court of Illinois, 2015). The ruling created an important precedent assigning the blame for underfunding to the state legislature's own shortcomings in managing its commitments.

With mixed results, other states have decided to phase out their DB pension systems and replace them with DC systems. The National Institute on Retirement Security (2015) looked at West Virginia, Michigan, and Alaska to assess the results of their switch from DB to DC. Overall, their analysis showed that the switch did not help underfunding. Contrary to common expectations it actually increased the costs of retirement provisions in all 3 states and increased retirement insecurity for workers enrolled in the new DC structures. One key argument brought forwards by the study is the high cost effectiveness of DB plans. Instead of dismantling participants and the

investment process, DB systems benefit from economies of scale by pooling assets together and focusing investment expertise onto a single balanced portfolio. This allows them to lower their internal management costs and negotiate better fees with the industry thus increasing their ability to generate better net returns on investments.

The scale and cohesion of the investment process of DB plans also allows them, at least in theory, to optimise their investment costs structure by balancing the operational costs of insourcing with the management fees incurred by outsourcing. However, the organisational diversity in terms of scale, local political climate, investment objectives and location relative to financial intermediaries has impacted significantly plans' cost benefits analysis, resulting in significant differences in the models of in- versus outsourcing DB plans have embraced in practice. Looking at a sample of 31 state and local plans, Urban (2018b) finds that in 2012 half the plans still outsourced close to 65 percent of their assets under management.

6.3 The local dominates the global

State and local pension plans are organised to fulfil a mission of public interest. Specifically, they are charged through delegated authority to collect, manage and distribute retirement assets for government employees. Despite the uniformity of their mission, organisational arrangements vary considerably between plans. Investment and administration functions are at times separated and at times integrated. Board of trustees' composition, plans' choice to insource or outsource their investment functions, and their use of intensive or extensive delegation also all vary considerably

across institutions. Functionalist critiques hold that such organisational diversity is inconsistent with the imperatives that come with managing financial assets under risk and uncertainty. Clark (2008) argues that the issue is somewhat overcome by virtue of expertise on the part of plans' decision-makers. However, whilst the model trumps organisational quirks, it remains fragile and vulnerable to changes amongst board members and key investment staff.

While I contend that large structural reforms according to a strict functionalist blueprint are unrealistic and undesirable, I argue here in favour of a hybrid investment strategy that combines in- and outsourcing as a solution that is adaptable to different organisational arrangements and contexts. To sustain my argument in favour of "a single solution" amidst diversity, I develop and discuss 6 dimensions of insourcing showing when and how this objective can be reconciled across varied circumstances. The diversity of shapes and sizes of state and local retirement systems in the United States are a direct product of the devolved authority flowing from federal to local governments. Here the "local dominates the global" so that particular local political and economic contexts dictate state and local plans' organisational arrangements. This contrasts with private pension systems which are subject to federal regulations (Clark and Monk, 2014).

The state legislator typically has authority over pension regulation and delegates the investment of contributions and the administration of benefits through a set governance structure. Once again, governance structures vary considerably between plans. While state legislators should theoretically only have a role of oversight, they can interfere in a number of ways. One way is through the introduction of legislative

bills. These can include a wide array of subjects that have disruptive effects on the management of pension assets (both investment and administration). Examples include altering benefits structure (see the case of Illinois), placing asset allocation limits (see Mitchell *et al.*, 2000; Clark and Monk, 2013a) or introducing targeted investment ban. Miller and Funston (2014) also underline problematic involvement in the approval of operating budgets, headcount, and plans' staff compensation policies.

6.4 Governance and insourcing

Statutes delimit the structure, responsibilities and composition of plans' board of trustees. To help navigate structural differences, Miller and Funston (2014) provide a useful classification of governance structures based on close examination of the fifty-five largest state plans. The most widely adopted model has one fiduciary board that delegates both the investment and the administration of the assets to a single organisation. The second most represented model has a fiduciary board that has a sole investment focus while the administration of benefits is devolved to a separate organisation. The third model has a one fiduciary board that delegates investment functions to one entity and the administration of benefits to another. The least common model has a sole fiduciary (not a board of fiduciaries) who is typically the state comptroller or treasurer who delegates pension investments to her/his department investment staff through a CIO. There is a separate benefits administration organisation with its own board that reports to another entity (not the sole fiduciary).

Boards of trustees' size and composition also vary significantly across plans (Andonov, Hochberg and Rauh, 2016). These variations have been extensively researched in relation to pension plans' investment and funding performance. Ambachtsheer (2007) suggests that substantive differences in governance are associated with differences in the range of 100 to 300 basis points in performance per year. Yang and Mitchell (2005) studied board composition's effect on funding status. They found that the presence of active and/or retired plan participants negatively impacts funding suggesting that members' interests representation on the board may conflict with investment imperatives. Munnell, Haverstick and Aubry (2008) had mixed results on the relation between funding ratios and board composition but found that plans with a separate investment council had, on average, funding ratios 4.9 percent higher than those without. Dobra and Lubich (2013), who also obtained inconclusive results on board composition, found that board size affects asset allocation with larger boards taking larger risk exposure. Finally, looking specifically at private equity investments, Andonov, Hochberg and Rauh (2016) found that the presence of ex-officio and participant elected board members negatively impacted plans' investment returns in the asset class. Their research pointed to conflicts of interest impacting fund performance in instances where ex-officio board members received political contributions from the financial industry.

These results stress the fundamental importance of investment expertise representation, implementation and protection. Clark (2004) noted that pension funds are not quite able to operate as equals with the rest of the financial industry as their governance model as well as the "knowledge and competence" of their trustees is not adapted to the complexity of contemporary financial markets. While it would seem

desirable and effective to have expertise flowing top-down, alongside authority, from the board to the investment functions, there are a number of instances where expertise is represented effectively at lower levels through set delegation structures.

This is the case in fiduciary management in which the design of the investment strategy is delegated to an external agent. Here authority and responsibility over the plan's investments is transferred to an external provider (Clark and Urwin, 2017). In this model, board level expertise is only incidental in their ability to select and negotiate a competent and competitive provider. It has the merit to limit board-led strategic and tactical mis-allocations that occur in instances when boards are charged with designing the investment strategy and yet lack the expertise to do so. Boards' lack of investment expertise is however very problematic in the hub-and-spokes model where an investment strategy designed by the board is then implemented by external contractors. As demonstrated by Brinson, Hood and Beebower (1986) in their landmark article *Determinants of Portfolio Performance*, asset allocation decisions are foundational to investment returns. First order mistakes emanating from boards that lack investment expertise and/or have hidden agendas are likely to incur significant losses in investment performance, regardless of the execution by external contractors.

With these observations in mind, I argue that insourcing is not only a cost-efficient investment model but also has the merit to bring back essential skills and expertise inside the organisation. Under this model boards of trustees, sometimes in conjunction with an investment sub-committee, design the investment strategy which is then implemented using internal capabilities; in practice, there are no entirely insourced public pension plans and this strategy is usually pursued in conjunction with

the help of external consultants for third-party oversight and guidance, and external managers to fill internal gaps in expertise. These insourced or rather hybrid plans nonetheless have substantial technological infrastructure and human capital that allow them to timely and directly implement a significant portion of their investment strategy, and monitor their entire portfolio using internal resources. Here, expertise is represented at different levels of authority within the organisation. Top-down investment decisions emanating from the board flow and loop through several layers of internal expertise including the CIO, the asset class heads, the investment managers, the analysts, the traders and risk managers. This hierarchy insures that investment decisions are assessed, negotiated and implemented dynamically inside the organisation (see Urban, 2018b for a detailed description of a large hybrid pension plan).

As discussed, good governance correlates positively to fund performance. Now good governance does not necessarily depend upon specific structural design but is rather anchored in mechanisms that allow decision-makers to efficiently and effectively manage stakeholders' expectations. Ambachtsheer, Capelle and Lum (2008) note: "Instead of providing oversight to the pension organization, Boards, and to a lesser degree, management, can get involved in sorting out the respective financial interests of retirees, active workers, future workers and sometimes even those of bond holders, shareholders or current and future taxpayers". To address these conflicting expectations, Clark and Urwin (2008) proposed a set of governance best practices. They identified three dimensions, namely mission, people and process. In a nutshell these three dimensions prescribe the following 1) a clearly formulated and stated organisational mission supported by adequate resources 2) a strong investment

expertise amongst investment decision makers and 3) a fund-wide investment process.

The effectiveness and recognition of their theory of good governance relies as much on the quality of its substantive proposition as on its versatility. Rather than propose a fixed model of pension governance that would for instance dictate board of trustees' size, structure and responsibilities, the authors address its moving parts to insure adaptability across a large range of structures. The six dimensions of insourcing proposed hereafter were identified in that same spirit: an attempt to conciliate practical relevance with flexibility. Theoretically, while each dimension is discussed in reference to specific research, there are a number of key scholarly work on institutional investors and public pension plans that underpin the proposed structure.

The first two dimensions **cash-flows** and **economies of scale** are largely inspired by Clark and Monk's latest book *Institutional Investors in Global Markets* (2017) and prior journal articles by the same authors (see most importantly: Clark and Monk, 2016; Clark and Monk, 2013b; Clark and Monk, 2013c). Dimension three, **asset allocation**, is identified as needing separate discussion in part because of its recognised importance in financial economics (Brinson, Hood and Beebower, 1986), but more specifically because of the importance it plays for insourcing in relation to human capital requirements to manage global balanced institutional portfolios (for empirical demonstration and discussion see Urban, 2018a; Urban, 2018b). Dimension four, **compensation**, is deemed important because of the fundamental role it plays in the competition for talent between financial institutions (Philippon and Reshef, 2012) and the persisting difficulties of public plans to attract and retain talented investment

professionals (Clark and Urwin, 2008; Clark and Monk, 2013). Dimension five, **location**, is grounded in the work conducted by Dixon and Monk (2014) on frontier finance and the implications of location on the insourcing strategies of institutional investors that find themselves at-a-distance from financial agglomerations. Finally, dimension six, **fiduciary duty and oversight** is anchored in Clark and Urwin (2017) comparative discussion on fiduciary management, hub-and-spokes and insourcing.

6.5 Dimensions of insourcing in state and local plans

Dimension 1: cash-flows

Insourcing requires substantial investments and organisational changes. In order for the associated costs to be fully amortised over time, plans need to be in a position to reasonably expect continuity of operations. In general, plans facing adverse cash-flows would be ill advised to invest in internal capabilities. Net cash-flows are determined by simply subtracting benefits to contributions. They are influenced in a number of ways. Take demographics for instance. A mature plan with a growing ratio of retirees per contributors will face negative cash-flows. Legislative decisions can also affect plans' cash flows. The most obvious one is the decision to freeze and/or close a DB system and replace it with a DC system. These initiatives solemnly happen overnight and usually underline a commitment on the part of legislators to different systems of retirement (DB versus DC). Systems embedded in a political environment that has an established record of pushing for the institution of DC systems may be well advised to avoid engaging in costly organisational changes. Broader public administration decisions affecting the size of state and local government workforce,

and as a result the number of plans' participants, such as budgetary cuts and privatisation will also affect future cash-flows.

Cuts in contributions, widespread in times of budgetary deficit, should also be considered. This is a rather atypical regulatory anomaly found in U.S. public sector pension plans. Indeed, compared to international standards public pension plans in the United States offer considerable room for manoeuvre to local constituencies when it comes to funding. U.S. public plans have no funding ratio requirement. This contrasts with other jurisdictions that set a funding floor for retirement systems. Dutch pension plans for instance are required to be funded at 105 percent. The Governmental Accounting Standards Board (GASB), which defines state and local government accounting standards, defines the Annual Required Contribution (ARC) as the dollar amount of contributions plans should pay-in to cover their projected liabilities. However, there is no enforcement mechanisms. Public administrations have the right to under-contribute and defer responsibility. This flexibility allows local governments to make trade-offs over competing uses of public resources, be it to manage budgetary deficits or pursue political strategies. Unfortunately, under-contributions have been found to significantly affect funding ratios and place pension plans in precarious positions (Munnell, Aubry and Cafarelli, 2015). Figure 7 below shows the marked increase in ARC as percentage of payroll and the concomitant rise in unpaid contributions. Between 2001 and 2016, while ARC raised from 5 to 16.5 percent, unpaid contributions raised from 0 to 5 peaking at 18.7 percent in 2011.

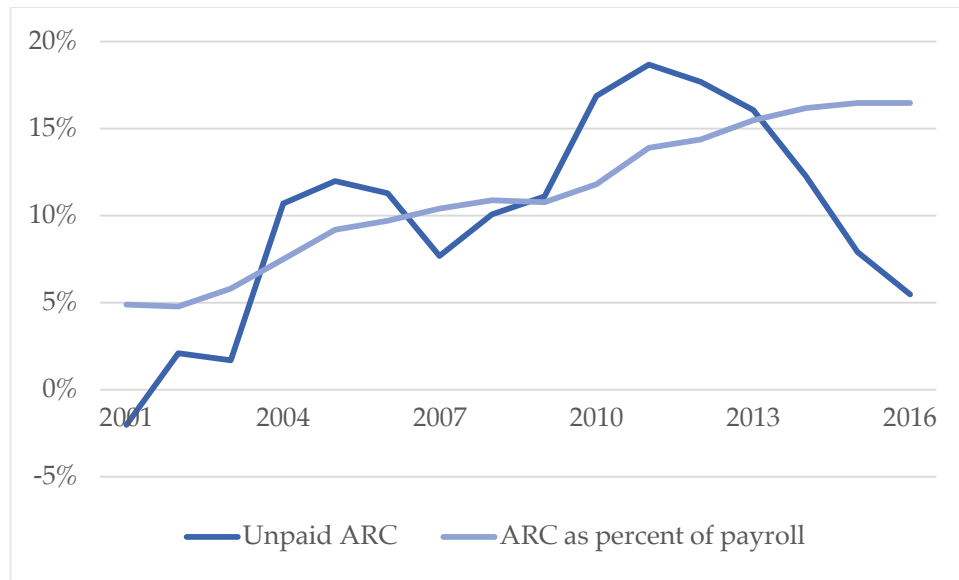


Figure 7. *ARC and unpaid contributions, 2006-2016.*

Source: authors' calculations based on national data from CRR (2016).

Brown and Wilcox (2009) further argued that current accounting standards allow state and local pension plans to disguise the scope of their unfunded liabilities. The behaviour is incentivised by current regulation allowing public pension plans to use expected investment returns as a discount rate for projected liabilities. A study by Andonov, Bauer and Cremers (2015) has expanded on this issue by demonstrating how plans' investment risk increases as plans artificially improve their funding status through inflated investment return objectives. This would require dedicated research but it seems likely that current lax regulatory standards entice a vicious circle that particularly affects plans in precarious situation: plans with lower funding ratios face higher ARC which are unlikely to be met, especially when government faces significant budgetary deficits; in an effort to mask the effect of under-contributions, plans increase investment return objectives and change their portfolio allocation with the hope that investment returns will make-up for unpaid ARC which increases the fund's risk-return profile. In adverse market conditions, funding ratios are negatively

impacted twice through poor contributions and investment losses; this in turn has the effect of incentivising further relative cuts in contributions matched by further pressure to increase markets returns expectations.

Overall, supportive cash-flows that demonstrate a political commitment to public sector services and DB systems of retirement are foundational. No matter how sound the investment strategy, poor contributions will always mean poor funding and cannot be realistically compensated by financial market returns. While building internal capabilities offers substantial benefits, it should not be pursued as a cost management strategy to make up for poor contributions. The costs and benefits of building internal capabilities should be given full consideration in a supportive contribution environment that underlines a real political commitment to its retirement system and provides the basis to construct of portfolio strategy that responds to market imperatives rather than political ones.

Dimension 2: economies of scale

Industry experts and scholars alike contend that AUM largely determine funds' ability to perform internal management. Clark (2004) states: "few pension funds are large enough in terms of their assets to provide both the routine and the highly specialised tasks and functions at competitive performance-related prices". Dixon and Monk, (2014) also assert that in their experience, 25bn USD is the threshold under which institutional investors such as pension plans and SWFs have not been able to internalise asset management in a meaningful way. While there are clear economies

of scale in asset management (see Collins, 2003 for a detailed empirical discussion), the view ought to be taken with a pinch of salt.

Based on data collected by the Maryland Public Policy Institute on the management fees paid in 2014 by 31 state plans ranging from 2bn to 300bn USD, Figure 8 shows that the relationship between assets size and total fees spent by public pension plans is not as clear as suggested. For instance, one will note that a number of “small” institutions managed to keep external fees low. Overall, fees ranged from 0.101 percent to 0.758 percent of AUM; these minimum and maximum were respectively paid by a 42bn USD and an 81bn USD plan. Average fees paid out were 0.413 percent. The sample’s standard deviation was 0.178 percent. The absence of a clear linear relationship ($R\text{-squared} = 0.0798$) suggests that there are other factors than total scale that dictate the costs of asset management. If anything, the relationship would be expected to be negative with larger plans paying lower management fees (expressed as a percentage of total AUM). Generally, I would argue that a plan total scale does not matter as much as how it operationalise its investment functions. The use of internal management, passive strategies or avoiding expensive asset classes all offer investment solutions to keep costs down regardless of size. This is discussed in more details in the asset allocation dimension.

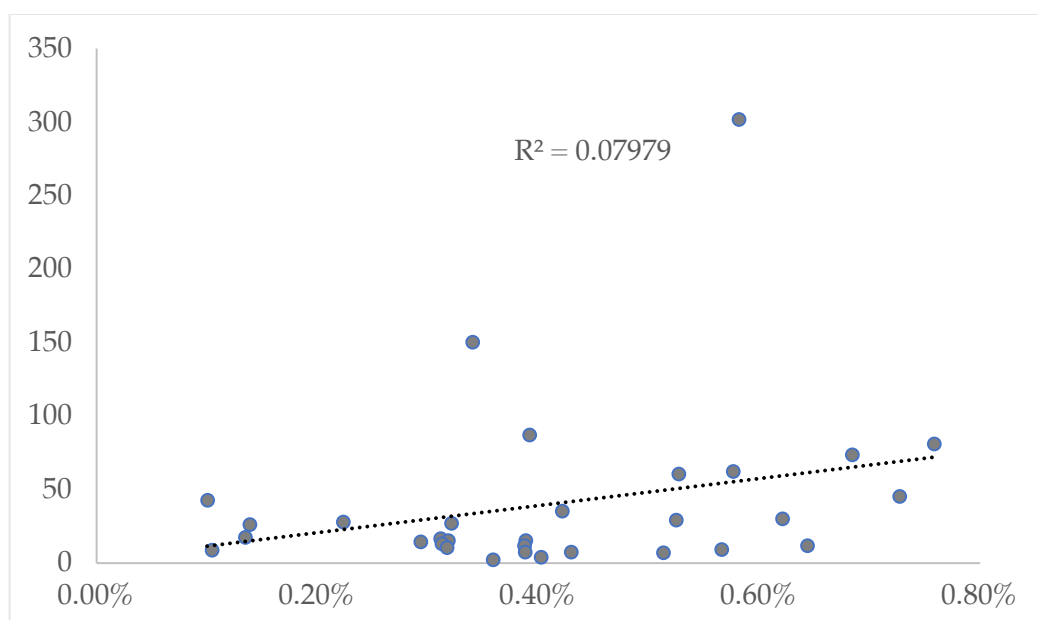


Figure 8. *Total AUM in billion USD v. Total investment management fees, 2014.*

Source: author's calculation based on data from Maryland Public Policy Institute.

The same can be said about the relationship between scale and the proportion of assets plans manage in-house. Whereas all pension plans share the same mission to fund future liabilities, their strategic responses in terms of in- versus outsourcing have been shown to vary according to several criteria, many of which take precedent over economies of scale. Recent econometric research has shown that the proportion of assets managed internally by state pension plans is expected to grow only by 0.1 percent for every 1 percent increase in plans' size (approximated using total membership). On the other hand, the study revealed the importance of other factors pertaining to asset allocation decisions (discussed in dimension 3) and the location of plans (discussed in dimension 5). The results also predicted that for every 1 percent increase in ARR, an additional 12.1 percent of total assets is allocated to external contractors (Urban, 2018a).

Thinking conceptually about how DB pension plans proceed in designing the deployment of their investment strategy this in fact hardly comes as a surprise. DB pension funds' primary objective is to meet their projected liabilities. This is achieved through a combination of employer contributions (ARC) and investment returns (ARR), both established through actuarial methods. As discussed previously, since there are no legal requirements for plans to meet their ARC, actuarial targets are often tweaked in practice. As a result, investment return objectives can be inflated to make up for under-contribution by state sponsors (Brown and Wilcox, 2009; Munnell, Aubry and Cafarelli, 2015).

Once a target investment return is established, portfolio theory determines an optimal strategic asset allocation that minimises investment risk for the given return objective. An asset class specific target return and risk budget is then established. These are then weighted against market return expectations to choose between an active or a passive strategy. If the targets exceed expected market returns, the need for alpha (returns in excess of a given market benchmark) will call for an active strategy. This process is schematically represented in Figure 9.

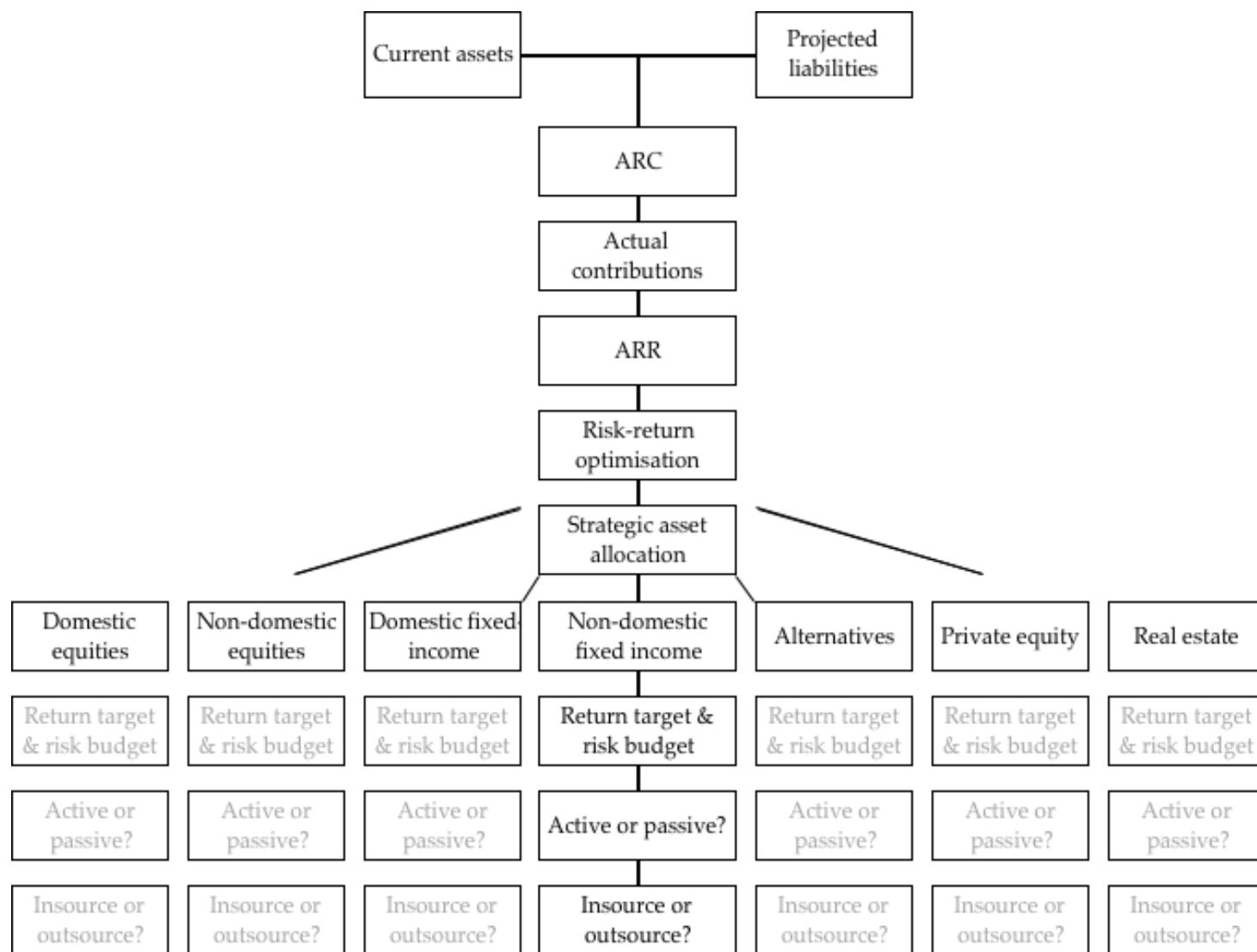


Figure 9. Scheme of investment process in DB public plans. Source: author.

At this stage, scale will be given attention systematically but at an asset class and even a more granular mandate level rather than a total fund level. At this stage, asset class and mandate level allocation size will largely dictate plans' negotiating power for fees on external mandates. The key takeaway here is that overall scale is unlikely to dictate the decision to in- or outsource and needs to be considered in light of qualitative distinctions pertaining to specific investment strategies. One might also note that scale may at times be a competitive disadvantage. For instance, larger funds such as the State Board Administration of Florida have to manage extensive networks of external mandates for their private equity investments as market size is limited and general partners are reluctant to assign too large proportions of their investments to a single client. Other giants such as CalPERS may also have less investment flexibility compared to smaller plans as they have to enter and exit markets in strategic tranches attributed to different brokers to avoid signalling their strategy and be negatively impacted by parallel and frontrunners.

Dimension 3: asset allocation

Whereas total plan AUM may not provide the best starting point to think about in-versus outsourcing, asset allocation and investment strategies help address the dilemma in a more granular way. This is because the management of different types of assets call for different needs in human and technological capital. In general, as the complexity of investments increases, investment management tends to become more human capital intensive and require larger technological infrastructure. Conversely, less complex investments tend to be less human capital intensive and require smaller

technological infrastructure. Here, complexity is to be understood as a measure of the liquidity and efficiency of assets, the degree of sophistication in the way they are traded and the way they are assembled into a comprehensive investment strategy. A U.S. large-caps equity portfolio is a typical example of a low complexity investment strategy that assembles long exposures to highly efficient and liquid assets. A hedge fund on the other hand is a typical example of a complex investment strategy. It may assemble long and short trades seeking to minimise market exposure (market neutral strategy) and may invest in inefficient and illiquid assets (relative value or distressed strategies).

In public pension plans with limited budgetary resources, internal management should be geared towards liquid and efficient investments, particularly public markets in equities and investment-grade debt. Internal active strategies may be better suited to larger plans given the fact that they require more resources than passive ones. Interestingly, there are now a growing number of players that have decided to stir away from active management. The most notable example is the Nevada Public Employee Retirement System. As of 2016, 90.8 percent of the plan's 36bn USD were invested in public markets covering U.S. and non-U.S. equities and fixed-income. Internally, the fund employs a single investment manager. Since 2015, its assets have been invested entirely through externally managed index funds distributed amongst six managers. Another four managers are covering their securities lending and private market commitments. The fund uses the services of only 2 external consultants. In 2016, it paid 18mn USD in total annual fees (NVPERS, 2016), which corresponds to 5 basis points (compare to 41 basis points average external management fees as

calculated and shown in Figure 8). As of 2016, the fund returned the 17th best 10 years investment performance among state pension plans.

Investing in alternative asset classes effectively requires large pool of illiquid capital and internal know-how (The Boston Consulting Group, 2015). In general, investment expenses (internal and/or external) increase as complexity increases. These expenses primarily reflect the pay premium for human capital encompassing scarce investment management skills and expertise. This is typical in asset classes such hedge funds and private equity. Regardless of total AUM, these asset classes are unlikely to be managed internally by pension plans as the required skills and expertise are prohibitive, especially for plans subject to legislative budgetary approval. The only option is then to either outsource or avoid these asset classes entirely. This of course needs to be weighed with the risk-return objectives of the fund. When considering the former solution, there are clear advantages of having sizeable commitments to complex asset classes in negotiating fees with external providers.

A study by CEM Benchmarking covering 1998 to 2011 notes that public pension plans with less than 2bn USD in AUM underperformed their larger peers. This was in part due to small plans' underperformance in U.S. small cap equities, real estate and private equity which trailed their peer-group by 115, 109 and 407 basis points respectively. While the study does not get into further details, the author notes that underperformance is, "at least in part, due to higher investment costs relative to the other fund type/size cohorts" (Beath, 2014). This relationship is further demonstrated in Figure 10. Here one can note a stronger linear relationship between plans' alternative allocation and total investment costs (R-Squared = 0.375; compare with

observations from Figure 8 to see that total investment costs are better explained by allocation to alternatives than by AUM). For small plans, the investment costs associated with complex asset classes may outweigh the return benefits. While small plans may prefer to stay away entirely, there are reasons that may entice sizeable plans to do the same thing. With over 300bn USD, CalPERS decided to divest its 4bn USD hedge fund commitment in 2014 over costs and complexity concerns (Bloomberg, 2014).

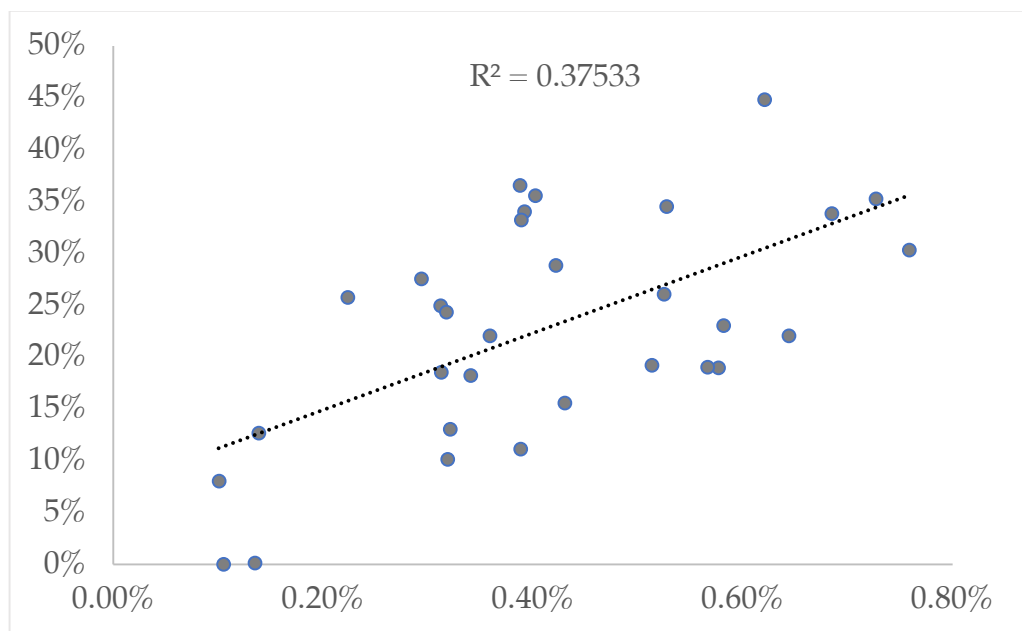


Figure 10. *Allocation to alternatives v. Total investment management fees, 2014.*
Source: author’s calculation based on data from Maryland Public Policy Institute.

Size should not determine whether plans cannot do internal management but rather dictate how to do it. Overall and regardless of size, plans should focus their internal capabilities in investments where they can add value in a cost-effective way within the limits imposed by the legislature on their operational budget. In general, the focus is likely to be on public markets in fixed-income and equities. As of 2015, these represented 75.9 percent of plans’ average asset allocation (The Center for Retirement

Research at Boston College). Since public plans currently only manage 36 percent of their assets in-house there is an untapped potential to insource a larger share of public plans' assets. In general, small plans are advised to avoid alternative asset classes as high fees are likely to negatively eat into investments returns. Large plans have the luxury to decide to either outsource the management of alternative assets at reasonable costs or make the choice to stay away entirely. Finally, plans may also make the choice of simplicity and focus on minimising their cost structure by emphasising passive public markets strategies. Interestingly this highly cost-effective model is also replicable across plans of different size, location and governance structure.

Dimension 4: compensation

Canadian pension funds have gathered a lot of attention over the last 10 years. Coined as the "Canadian model" and pioneered by Ontario Teachers in the 1990's, a number of Canadian plans successfully brought a majority of their assets in-house. But their superior investment returns are not just the result of their larger internal capabilities. According to a recent report by the Boston Consulting Group (2015), Canadian plans owe their investment success to a combination of low cost internal management as well as to their distinctive asset allocation. In particular, their sizeable commitments towards alternative investments averaging 32 percent was rewarded by superior returns in private equity in particular. In comparison, their U.S. peers only allocate 16.4 percent of their assets to alternatives.

While the Canadian model has demonstrated its merits, it is unlikely it can be replicated in the U.S. for at least two reasons, both rooted in the heavy legislative interference imposed on U.S. plans. First, a number of states' legislation impose allocation ceilings by asset classes. Second, U.S. public plans continue to offer some of the least competitive compensation packages making it difficult for plans to attract and retain talented investment professionals across asset classes and particularly when considering complex ones. MacIntosh and Scheibelhut (2012) global study of large pension institutions showed marked compensation differences across geographies. On average, Canadian funds pay the highest compensation to their investment staff with annual salary of 536'000 USD, followed by Europe with 246'000 USD, followed by the United States with 148'000 USD, and Australia and New Zealand with 139'000 USD. Differences of similar magnitude are observed for governance, operations and support functions.

This is because in most cases rather than charging plans' assets directly as it is done with external management fees, expenses on internal capabilities are billed to the legislator. For instance, the Oregon State Treasury, which manages over 72bn USD in DB assets, recently made a second attempt to convince the state legislature to add 10mn USD to its operating budget to recruit an extra 30 investment professionals and extend its current in-house capabilities (P&I Online, 2017). 10mn USD is a sum large enough for a public administration to carefully consider the demand. Relative to the plan's asset base however, the extra budget represents only 1.39 basis points; a small commitment in comparison to the average 41.3 basis points paid by state plans on external management fees in 2014.

From a legislator's point of view, satisfying public opinion may at times take priority over concerns of functionalism. Because of the difference in accounting treatments between internal and external management costs, every penny spent on internal resources is subject to public scrutiny whereas fees paid for external management services go relatively unnoticed. Given the lack of popularity of public pension plans, often perceived as a minority privilege collectively sponsored by tax payers, elected officials tend to worry over the political costs of allocating public resources towards public pension systems. As a consequence, public plans' operating budgets tend to be slim, effectively forcing them to turn to the market for investment services. Over the long run this dynamic is highly counterproductive given the large savings that could be achieved through in-house asset management.

The current system is also somewhat absurd given that taxpayers ultimately bear responsibility for public pension liabilities. The current double standards in the treatment of internal and external investment expenses distorts the perception of the problem. In a nutshell, it discounts current spending, increases future costs and generally pushes-back the burden of negative consequences. In the future, public plans that keep over-paying for external management fees are more likely to have to tap into taxpayers' money to pay benefits. One solution would be to give public pension plans the autonomy to manage their operating budgets independently and charge funds' assets directly. Internal and external expenses would impact the funds' net performance. The structure of internal and external management would be optimised according to a strict economic logic. Another solution would be to make external management costs part of a fund's operating budget. Under this system, both internal and external management costs would be subject to public scrutiny. This

would put the public and elected representatives in front of the question of whether public resources should be spent on Wall Street fees or local public servants. Here the allocation of public resources would be optimised according to a democratic logic.

While the political dynamics underpinning investment staff compensation gap amongst state and local plans continues to pose significant challenges, it has been argued that some public plans have found creative recruitment strategies to hire at the margin of labour markets (Dixon and Monk, 2014). One solution has been to play a cyclical recruitment strategy, hiring private sector talents at a discount during recession times. The sustained labour market contraction that ensued the GFC has provided fertile grounds for public plans. However, the strategy may backfire if the markets were to fully recover. A number of plans have also made the strategic choice to shelter from the market by playing on a distinctive value proposition. Instead of going against the market, they have been able to attract and retain talents by offering qualitatively superior working conditions compared to private sector firms.

In a detailed case-study based discussion on talent in public pension plans Urban (2018b) showed that differentiation can be instrumental when focused around improved work-life balance and a collaborative work environment. This stands in contrast with private sector norms that tend to value intensity of efforts, personal concessions and nurture a silo mentality that rewards individual performance. Since most pension plans are located in small to mid-size metropolitan areas, lower costs of living were also shown to help justify lower base pay compared to the high wages and high cost-of-living observed in and around large financial centres. Finally, in order to keep employees incentivised to work towards a total fund return objective, incentive

compensation have been kept below industry practices and structured to put a premium on total fund returns as opposed to reward asset class or individual performance.

Dimension 5: location

Plans' location in relation to private sector providers of financial products and services also plays a significant role in dictating in- versus outsourcing strategies. A study of 21 state plans over the period 2006 to 2012 indicates that plans embedded in a vibrant local financial sector as well as those in proximity of leading IFCs (New York, Boston, Chicago, and San Francisco) are significantly more likely to outsource their investment management (Urban, 2018a). Plans co-located with a vibrant financial sector may have greater difficulties in attracting investment professionals since the pay gap becomes more apparent. Co-located plans face the difficulty to offer lower compensation packages relative to the industry without the benefits of an enhanced quality of life and lower costs-of-living. Close physical proximity with a financial agglomeration also nurtures a relational proximity with the industry that may disincentivise public plans to try and replicate the functions of top-tier financial institutions.

As discussed, total AUM as an isolated concept is a weak predictor of public plans' insourcing strategies. It may however play a significant role in the outsourcing of investment functions when considered in relation to plans' relative proximity to hubs of private sector contractors. In general, scale gives room for choice. A large co-located

plan such as CalPERS (300+bn USD), based in Sacramento only a few miles from San Francisco, is in a strong position to negotiate fees and cultivate close relationships with external contractors. On the other hand, a large isolated plan such as the State Board Administration of Florida (SBA; 150+bn USD) based in Tallahassee represents enough business potential for external contractors to be willing to undergo four hours flights via Atlanta. When it comes to outsourcing, scale transcends geographical distance.

Considering insourcing on the other hand, the SBA may be at a slight advantage compared to CalPERS given the fact that it does not have to compete with a vibrant local financial sector. Initially, given the small local labour pool, it may be harder to recruit talent nationally on highly competitive markets. For prospective employees, the relocation process may be a disincentive to join the SBA. On the other hand, isolation may help retention given the absence of local professional alternatives. Lower local costs of living in Tallahassee compared to Sacramento also help justify lower compensation. Base salary for an investment manager position at CalPERS is set at 175'000 USD compared to 127'000 USD at the SBA. Differences become more significant when including variable compensation which are substantial at CalPERS (about 40 percent of base pay) and inexistent at the SBA. The gap not explained by lower costs of living are probably due to differences in political support and public acceptance of government employees' compensation policies between California and Florida, respectively historically progressive and conservative states.

Small plans on the other hand have less flexibility when considering relationships with external providers. In general, small players are expected to be put at a disadvantage because business potential is too small to negotiate preferential fees. For

the same reason, they are also less likely to receive the degree of personal care external contractors would dedicate to larger plans. When isolated (located afar from contractors) the problem is likely to increase. As the relationship grows more distant so does the quality of oversight which may result in poor interest alignment. Being small and distant is probably the weakest position to be in when considering external management. This challenge may be, at least in part, overcome through the build-up of internal management capabilities. Given the strong relationship between costs and complexity, small plans should try to focus their internal if not all their resources on long, passive and low turnover strategies. However, as small plans tend to have lower funding ratios than their larger peers they are also more likely to have an increased appetite for more complex and active strategies. As discussed and demonstrated by the BCG report, these are unlikely to be successful because of higher management costs. These recommendations are summarized in Table 7.

Table 7. *Location v. AUM*

| | | AUM | |
|---|------------------|-----------------|--------------|
| | | <i>Small</i> | <i>Large</i> |
| Location relative to financial agglomerations | <i>Connected</i> | Outsource - mix | Choice - mix |
| | <i>Isolated</i> | Insource | Choice - mix |

Source: author

Dimension 6: fiduciary duty and oversight

Working in the best interests of their clients, board members ought to deploy an investment strategy that is consistent with their fund's net risk-adjusted investment return objectives. The main impediments to the fulfilment of this mission are political interferences that right-skew investment objectives. This is likely to happen when public plans become entangled with larger public administration considerations since legislators have the freedom to effectively transfer part of their responsibility for contributions onto the board's responsibility for investment returns. This will in turn lead to sub-optimal deployment of the fund's assets, reflected in a fund's asset allocation, its implementation (insourcing, outsourcing) and ultimately lead to inferior investment returns.

Fundamentally, net risk-adjusted investment return objectives and corresponding investment strategies (asset allocation and insourcing) should not solely be driven by the funding needs of the plan (as determined by actuarial projections) but balanced considering financial market prospects as well the costs of implementation. This is a fine and complex balance that requires shrewd investment expertise. Different combinations of funding status, legislative commitment to adequate contribution and financial market prospects will call for different adjustments leading to different target returns and implementation. For the resulting strategy to be effective it will not only have to perform well on a risk-adjusted basis but also be cost effective. In general, fiduciary duty and investment management expertise should dictate pension plans' investment strategies and trump conflicting stakeholders' agendas.

One way of achieving this mission is to make cost minimisation an overarching investment principle. The Nevada state pension plan exemplifies this approach quite powerfully by adopting a passive investment strategy that requires minimum intervention. This strategy can be deployed through either external managers or internal management capabilities at reasonable costs. Active management on the other hand will call upon infrastructure and human capital needs that will inevitably increase costs. In general, these higher costs will be justified if they are at least compensated if not exceeded by outperformance. The choice of using active management should be the result of balancing the objectives of the fund with a careful cost benefit analysis.

While cost management falls within the purview of a board's fiduciary duty, it is not the only reason to consider building internal capabilities. Having internal skills and expertise as well as technological infrastructure can also play a critical role in guaranteeing a board's ability to timely exercise its responsibility of oversight. In instances where pension plans comprehensively adopt fiduciary management the problem is, at least in theory, resolved as investment responsibilities are delegated to an external agent. Clark and Urwin (2017) state: "Fiduciary management is understood as the outsourcing of the framing and implementation of investment strategy when using a number of external managers to fulfil a total fund objective, conforming to investment mandates and redundancy between mandates". However, as the authors note, fiduciary management still requires good governance to function effectively.

Regardless of the mode of investment management - hub and spokes, fiduciary management or insourcing - a combination of high level internal expertise and access to timely and transparent information is critical to support good governance. Across all three models, board level investment expertise should be a priority and constitutes a non-negotiable building block of plans' internal capabilities. To guarantee oversight, further internal capabilities may be required depending on differences in investment strategy and implementation. For the purpose of the discussion, these are stylised into three key strategies.

Under Model A, plans adopt an almost entirely passive and low complexity investment strategy. This is the least capital intensive model and corresponds to the State of Nevada Retirement System. In this case, because index trackers entail no proprietary information in terms of allocation, holdings can be reconciled and accessed in real time with basic technological means. Under this model, transparency of information is almost guaranteed. Given the low complexity as well as the passive nature of the strategy (index tracking and low intervention), it also requires very little human capital. This model can be adopted by co-located and distant plans alike. It is also accessible to small, medium and large plans across different governance structures typically observed in state and local plans as long as fiduciaries' can attest to minimum investment management expertise. This model is likely to be embraced by plans that have superior funding ratios and can afford to aim for investment returns that reflect global market returns on balanced strategies.

Under Model B, plans adopt a mixed strategy of actively and passively managed accounts. Because active strategies entail proprietary information, investment

managers may not guarantee continuous access to their holdings. This will leave gaps where managers can take bets to benefit from market trends that fall outside of their mandate. This may improve their performance but also runs the risk of distorting the diversification objective of the plan. Furthermore, those gaps in information can also mask situations of redundancy as investments across mandates overlap. Under this model, building internal capabilities that regroup asset class specific expertise together with a technological infrastructure that guarantees daily access through a single custodian account can be a cost-effective way to guarantee timely oversight. The model requires acceptance and support from the legislature as it requires more significant budgetary commitments than Model A. Internal investment capabilities will be right-skewed toward long-term investments in efficient and liquid asset classes while expertise gaps in more complex asset classes will be filled by external mandates. This model is highly scalable and should be within the reach of plans of different sizes. Because recruitment is an important component of the model, location in conjunction with compensation policies are central to its effectiveness.

Under Model C, plans adopt a predominantly active strategy. This is the most capital intensive model corresponding to the Canadian Model. It requires internal resources that are most likely beyond the reach of U.S. public pension plans given their current budgetary constraints, regardless of size. The issues regarding their governance are however the same as the ones encountered under Model B. The recruitment of a small team capable of doing asset class specific fund selection and mandate oversight would be advisable. Similarly, to Model B, those plans would also be advised to invest in the minimum technological infrastructure allowing timely and comprehensive access to their fund's holdings through a single custodian.

6.6 Conclusions

The deterioration of the funding of state and local pension plans may see the failure of these institutions, the demise of a paternalist system that guarantees retirement income (DB) and its replacement by one of individualism and uncertainty (DC). At another level, the burden incurred by the costs of these funds may also precipitate the default of governments on state liabilities. The socio-economic implications for public plan participants and taxpayers are difficult to predict with exactitude but should not be understated. As emphasised in this chapter, whereas state and local pension systems are characterised by diversity reflecting the localism determining their arrangements and difficulties, there are nonetheless a number of systemic issues that ought to be understood and addressed.

Insourcing was presented here as an important part of the solutions aimed at improving the health of state and local pension plans. Nonetheless, given the diversity, it was also emphasised that it needs to be strategically implemented in reference to particular contexts and, ideally, be supported by a larger set of reforms. Particularly, one would hope to see the GASB to enforce new standards for discounting liabilities in calculating public plans' funding ratios. Ideally, these standards would be levelled with those currently enforced for private sector pension plans that require discount rates to be calculated as a function of current interest rates (Crossley and Jametti, 2013). This would have the effect to level the political discussion on the future of these institutions with a fairer representation of their needs. It would also be desirable to institute new regulations that force state and local government to meet their required contributions. These measures would eliminate the current

practice of transferring sponsors' responsibility for contributions onto boards' responsibility for investment returns.

Last but not least, one would hope to see significant cohesive changes in the governance structure of state and local plans. Particularly, and as noted by previous commentators, board of trustees should be constituted around adequate representation of investment expertise (Clark and Urwin, 2008). This is foundational in insulating the investment operations of the plans from political interferences. Expertise balancing the needs in investment returns with informed market expectations should, in theory, guarantee that the interests of various stakeholders are best served and trump the need to have representatives lacking such ability to sit on the boards. It is the author's sincere hope to witness the materialisation of such leap in political courage. This combination of regulatory and governance reforms would provide a healthy base to strategize the implementation of fund-wide investment programs that use insourcing and outsourcing in the most efficient way given contextual particularities.

Between idealism and scepticism, realism however forces to consider and address the current dynamics that shape these institutions. This is the position taken in this chapter and underlines the proposed dimensions of insourcing. Whereas a future change of paradigm is desirable, the perspectives offered here have the merit to offer instrumental flexibility across a varied landscape of institutions without the need of major legislative reforms. Overall, the six dimensions presented here offer a comprehensive framework to strategically consider insourcing as an investment model that can be highly cost effective and improve fund wide oversight. Last but not

least, whereas this chapter primarily follows and addresses recent debates on the benefits of insourcing and outsourcing for institutional investors, it also points to an interesting third-alley to improve net returns by focusing on minimising investment costs. The “do-nothing” approach (see Wall Street Journal, 2016), powerfully exemplified by the State of Nevada Retirement System, that focuses on low turnover passive strategies on public markets should be followed closely and may provide inspiration to fix complex problems with simple solutions.

7. CONCLUSIONS

7.1 The big issue

Significant obstacles stand in the way of securing the retirement promises of public pension funds in the United States. Anaemic economic growth, financial markets volatility, budgetary deficits, lax regulation, political interferences and under-contributions have made up a recipe for disaster. A combination of adverse circumstances and poor decision-making has plunged public pensions into an abyss that will require political courage, concessions and creativity to come-back from. The implications should not be understated. At stake are the current and future livelihoods of a population of 31.2 million individuals. Additionally, amidst already weak fiscal health, the depth of uncovered pension liabilities may precipitate the bankruptcy of a number of state and local governments. Whereas the issue is recognised, it remains under-appreciated and addressed in ways that do not match the seriousness of its social and economic implications.

Collectively state and local plans manage close to 4tn USD and face, at best, unfunded liabilities close to 1.5tn USD. The way these 4tn of current assets are allocated as well as the means employed to do so have a significant role to play in closing this gap. Insourcing presents itself as a cost-effective and empowering investment management model that holds significant potential. However, substantial geographical and institutional challenges stand in the way. This doctoral thesis proposed to explore these challenges by revealing the asset management practices of public pension systems in the United States. It identified key dynamics underpinning their

arrangements, and proposed meaningful solutions to implement insourcing as a way to decrease dependence on financial intermediaries and in the process, improve net investment returns and oversight.

By uncovering and critically assessing the provision of investment services amongst public pension funds, it constructed an original and empirically grounded narrative advocating for autonomy at the margin of corporate circuits of capital. At its core, it contributes important knowledge on the necessary foundations to secure a reasonable retirement income and safeguard the welfare of millions of people. Notwithstanding the rapid demise of DB systems, it defends the view that not only DB pensions protect retirement security, they hold untapped potential in terms of costs effectiveness. By pooling assets into a single investment portfolio and insourcing part of their investment processes, DB plans can implement sophisticated large-scale investment strategies at a cost DC plans will never be able to compete with. At a time when an increasing number of private and public sector institutions consider making the switch to DC, it is more important than ever to defend the status of these institutions by providing meaningful solutions to improve their functionalism.

While insourcing carries great promises for asset owners, they are tainted by a number of challenges. At heart lies a fascinating question for economic geography: does the place of production of investment returns matter? This question has a double entendre. Place entails an organisational as well as a locational dimension. The organisational dimension encompasses characteristics on the nature, size, scope and objectives of financial institutions. The geographical dimension pertains to the location of decision-making, be it internal or external, in relation to the location of

invested assets and their spaces of financialisation. As emphasised throughout this thesis, public and private sector asset owners have significantly different resources at their disposal. Because of the budgetary pressures imposed on public sector asset owners, they are generally at a disadvantage to build the technological infrastructure and recruit the human capital required to comprehensively insource their investment functions. Acknowledging the extent of the challenge, this doctoral thesis argued that it can be overcome through strategic implementation.

The virtualisation of financial markets has, at least in part, proven right 1990's speculations on a forthcoming end of geography. As expected, technological advancements have redefined and expanded the boundaries of investment spaces in unprecedented ways. However, whereas these advancements allow timely access to financial markets from virtually any given space, the decision-making of contemporary investment processes largely remains human capital intensive. While this general assertion is backed by the enduring importance of agglomeration economies in the financial industry, it was argued it should be taken with a pinch of salt when considering buy-side financial institutions. In particular, the results presented here called for further discussion in light of substantive differences between asset classes and investment strategies.

On one hand information technologies and the virtualisation of public markets have produced large-scale liquid and efficient investment opportunities. Particularly, fixed income instruments and equities originating from developed economies are now priced and traded so efficiently on public markets that human capital intensive active management is becoming increasingly obsolete and replaced by technologically

intensive passive investment strategies. The wide-spread commodification of information and automation of transactions characterising these asset classes make them particularly well suited to investment-a-distance. The reduced locational constraints combined with the low costs profile of these investments makes them a first-order choice for insourcing amongst distant asset owners with limited resources.

On the other hand, distant investments in emerging economies, private markets and alternative investment strategies escaping wide-spread automation and virtualisation remain human capital intensive and thus tangibly grounded around key territorial spaces. These asset classes often entail higher transaction costs, information asymmetries, illiquidity and inefficiencies that can induce large departures from market returns. These departures depend on the quality of decision-making. Here, active management can still offer value for money. Paramount to beating the market are financial institutions' ability to combine timely and accurate information with the right specialised skills and expertise. The scarcity of both inputs makes these investments expensive to contract out and to insource. As they escape wide-spread virtualisation, they also come with locational constraints. In particular, critical non-commodified information that circulates amongst closed communities of investment practitioners tends to be spatially contained within specialised clusters. The high costs and the locational constraints associated with these asset classes make them less suited for insourcing amongst distant and resource constrained asset owners.

7.2 Scholarly underpinnings

Dixon and Monk's (2014) analytical proposition of frontier finance first sketched these challenges along with a truly exciting promise: by challenging established conventions, asset owners such as pension funds have an opportunity to take their fate back in their own hands, tangibly address a looming retirement crisis and disrupt a multibillion dollar industry in the process. Through insourcing, the authors hypothesised that large asset owners including not only pension funds but also SWFs and other beneficiary institutions were presented a "window of locational opportunity". As institutions located afar from global financial agglomerations, these asset owners held the potential to bypass private sector asset managers, gain independence and redraw traditional circuits of capital through time and space. However, the authors' empirical findings called for patience if not resignation.

In the aftermaths of the GFC, the competitive landscape of global finance effectively shrank as banks became larger and fewer, and IFCs strengthened their dominance on global capital flows. What looked like an opportunity for traditionally outsourced asset owners to challenge a diminished industry turned out quite differently. Nonetheless Dixon and Monk's article provided an analytical model to rethink how to approach institutional asset management in financial geography. By conceptualising the frontier of finance, the authors brought together the hot topics of pension and sovereign wealth funds capitalism, the agglomerative processes of the financial industry and competing models of investment management. In doing so, they provided a powerful conceptual lens to not only address contested debates in the

geography of finance but also opened avenues for research and help bringing the movement to fruition.

As I delved further into the theoretical potential of their proposition, I was struck by the marked absence of significant quantitative studies on the topic. In an era of intensifying privatisation and public-private partnerships, it seemed surprising that, to this day, there was no scholarship offering quantified evidences of how and by whom governments' pension capital was managed. Notwithstanding a rich body of research on institutional investors and their investment management practices by scholars including Gordon Clark, Ashby Monk, Adam Dixon and Roger Urwin, (see for instance Clark and Urwin, 2008, 2017; Dixon, 2012; Dixon and Monk, 2014; Clark and Monk, 2017), academic understanding of the geography of institutional capital market investments has been almost entirely dominated by theoretical and qualitative accounts.

While this scholarship offered invaluable insights on institutional investors and the nature and scope of financial market investments, the methods of analysis and ambitions to describe large scale institutional arrangements have left a number of important questions unaddressed. Perhaps symptomatic of earlier methodological debates in economic geography (compare Clark, 1998 and Overman, 2004), it has left open an opportunity to reassess existing scholarship and expand on its propositions through positive science. In particular, there was a paucity of empirically grounded research on the modes of investment service provision embraced by different types of asset owners as well as the factors that dictate their arrangements. This doctoral thesis stemmed from the desire to address this gap. Exploring the role of embodied,

institutional, territorial and virtual spaces in the production of investment returns, it proposed an empirically based economic geography of asset management practices in public pension plans.

Using mixed-methods, the research project contributes rich quantitative, qualitative and theoretical insights on insourcing amongst public pension plans relevant to a larger set of asset owners. The findings have material implications towards improving the functionalism of financial institutions serving a mission of public interest with profound socio-economic responsibilities. The key research objectives and contributions of the four substantive chapters of this thesis are hereafter summarised. Acknowledging the limitations of the present thesis and using this opportunity to also share the numerous research ideas that time and resources did not allow to pursue, a final section proposes to elaborate a research agenda that holds interesting promises for policy making, pension economics and economic and financial geography.

7.3 Implications and solutions

Chapter 3 addressed the following research question: how and where are public pensions' assets managed?

Chapter 3 proposed to anchor its empirical ambitions in the concept of rescaling. Encompassing a geographical and an institutional dimension, rescaling described a dislocation of public pensions' financial capital away from private sector intermediaries towards government institutions and as such away from financial

agglomerations towards distant local economies. As suggested, prompting rescaling is public pension plans' decision to make rather than buy investment returns. To set the stage, the chapter showed that the majority of state and local pension plans' capital, over 2.5tn USD, are tied to beneficiaries located outside of the country's IFCs. This was argued to be central to understand the geographical dimension of the make-or-buy dilemma for public pension plans. Given this dislocation, they face the dichotomous choice to either bypass contractors and insource at-a-distance, or proxy co-location through intermediation. Ultimately, their decision dictates whether public pensions' assets converge towards the core or remains at the periphery of traditional circuits of capital.

The second part of the empirical analysis relied on a proprietary dataset provided by P&I in support of this research. It included a key metric that allowed to calculate the annual proportion of assets managed internally by a sample of 31 pension systems between 2006 to 2012. By setting a low threshold of 1bn+ USD, the sample included "small" plans conventionally dismissed by scholarly analysis. The findings confirmed that state and local pension plans rely predominantly on external managers. Nonetheless, with a national average of 32 percent of internally managed assets and a handful of predominantly insourced plans, the frontier finance thesis was argued to be verified in meaningful ways.

Looking at arrangements through space, the chapter showed that the states with the largest average internal capabilities incidentally host inconsequential financial agglomerations and are fairly distant from IFCs. In light of this finding, it was suggested that physical distance from the industry may in fact increase public pension

plans' autonomy. As such, the hypothesis allowed to debate the role of co-location, understood as physical proximity, in the production of investment returns. Data on the nature of the asset classes managed internally showed public plans' marked preference for proximate, liquid and efficient assets. Domestic equity and fixed income investments consistently represented between 60 and 70 percent of plans' internal capabilities. Only the largest plans (100bn+ USD) ventured into non-domestic investments while the management of private equities and hedge funds was almost entirely outsourced. This is an important contribution challenging prior commentators' view that public market investments are better served by intermediaries located in IFCs where most equity and fixed-income investments are issued and traded (compare with Dixon and Monk, 2014).

The longitudinal analysis showed the significant organisational inertia of public pension plans. Two third of the plans included in the sample showed very little variations in organisational arrangements between 2006 and 2012. This is somewhat worrying given the unprecedented market events of 2007-08. This path dependency was interpreted as a consequence of the substantive differences in resources necessary to manage different types of financial investments. In general, investments that are human capital intensive, illiquid and inefficient were argued to be harder to move from internal to external management and vice-versa. This is tied to the difficulty to rapidly overturn infrastructural commitments and employment contracts. It is reflected by industry practices that prescribe lock-in periods on mandates covering less liquid and scalable asset classes as a way to protect themselves from abrupt outflows.

On the other hand, starting in 2006 a sub-group of primarily insourced and outsourced plans making-up a third of the sample converged towards a hybrid model splitting their assets equally between internal and external management. Although overall state and local plans do not appear to be running away from Wall-Street, this convergence pattern confirmed an ongoing rescaling of public pension finance in the United States. Finally, the chapter also emphasised the significant variability observed between plans, regions and time periods pointing to the variegated nature of public pension systems' organisational arrangements. Altogether, these findings stimulated the elaboration of a larger econometric investigation in order to substantiate the findings and hypothesis derived from this first analysis. This is what chapter 4 proposed to do.

Chapter 4 addressed the following question: what factors explain public pension plans response to the make-or-buy dilemma?

Scholars close to the industry hypothesised that the GFC might have acted as a catalyst for institutional investors to question established norms and practices and look for alternative solutions to reduce their reliance on financial intermediaries and regain control over their investments (Clark and Monk, 2013; Dixon and Monk, 2014). However, the longitudinal analysis of chapter 3 showed little correlation between the market events of 2007-08 and the outsourcing practices of state and local pension plans. Speculations of an insourcing trend in the aftermaths of the GFC reflected a sentiment amongst practitioners rather than tangible action. Because scholarly accounts on institutional investors have largely relied on qualitative methods it is perhaps unsurprising that insiders' sentiment got reported in the literature. However,

missing from existing accounts were substantiated evidences on why asset owners failed to translate intentions into actions.

Chapter 4 addressed this gap. Expanding on the findings of chapter 3 it proposed a quantitative model explaining the proportion of assets public pension plans choose to manage internally. To develop a model fitted to public pension plans, I proposed an original conceptual framework reflecting the “problem of embeddedness” in addressing the make-or-buy dilemma in geographically dispersed government sponsored beneficiary institutions. The framework identified three distinct scales deemed important in shaping local institutional arrangements in relation to the production of global investment returns. The micro-institutional scale encompassed characteristics specific to a single institution. It emphasised the importance of economies of scale and asset allocation. The meso-economic pertained to plans’ local economic environment and emphasised the importance of location and connectedness in relation to the financial industry. Finally, the macro-political scale referred to plans’ sponsors emphasising the role of public administration characteristics in plans’ response to the make-or-buy dilemma.

To reflect the framework the P&I dataset used in chapter 3 was augmented with additional variables obtained from a broad range of resources including the Centre for Retirement Research at Boston College (CRRBC), plans’ Comprehensive Annual Financial Reports (CAFRs), the U.S. Bureau of Economic Analysis (BEA), the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS). By combining these different sources, the enhanced dataset regrouped panel-data on variables at an institutional, local economic and governmental level. As in chapter 3, the period of

analysis was 2006-2012 corresponding to the longest time series available at the time. Using this original dataset, the results section of the chapter discussed the output of a random-effects regression model on panel data assessing the effect of 13 independent variables on the ratio of assets managed internally by a sample of 21 state plans.

A key contribution of the statistical analysis pertained to the unique actuarial leeway allowed by current regulation for public pension systems in the United States. It demonstrated how public pension plans' outsourcing practices are in large part a product of their overinflated investment return expectations. Specifically, the model predicted a 12.1 percent decrease in internally managed assets for every 1 percent increase in plans' target investment returns. This finding was argued to reflect the broken regulation of public pensions in the United States that allows sponsors to discount liabilities with expected investment returns. Averaging 7.9 percent over 2006-2012, these unrealistic expectations were argued to be a dangerous compensation mechanism transferring sponsors' responsibility onto pensions' boards in an attempt to compensate subpar contributions with superior investment returns. Effectively tilting portfolio allocation towards complex, risky and expensive asset classes, this agency problem was demonstrated to force plans to turn to the industry. While the behaviour provides a political quick-fix, over the long-run these interferences are likely to further undermine the funding of public pension systems.

The model predicted a 0.1 percent increase in assets managed internally for every 1 percent increase in plans' size. While the finding confirmed the presence of economies of scale, the small magnitude of the effect showed that AUM may not have as much importance as commentators have suggested. The results should motivate future

research to look more closely at a neglected segment of institutions deemed too small for insourcing. With regards to asset allocation, the model predicted a 0.31 percent increase in assets managed internally for every 1 percent increase in domestic investments in equity and fixed income. Conversely, it predicted a decrease of 0.42 percent in internally managed assets for every 1 percent increase in allocation towards alternatives, private equity and real estate. These results suggest that while public plans have persistent difficulties in internalising human capital intensive asset classes, they do find ways to bring more technologically intensive efficient and liquid asset classes in-house.

Looking at plans' local economic characteristics, the model predicted a 1.52 percent decrease in internally managed assets for every 1 percent increase in the contribution of the financial sector to local economic output. Additionally, the model predicted a 0.3 percent decrease in internally managed assets in plans located within 100 miles from an IFC. Whereas the incidence of the latter is rather small, both results point to the same conclusion: physical proximity with a developed financial sector pushes public pension plans to outsource. These results make an important contribution suggesting that co-location between sell-side and buy-side asset management institutions may be detrimental to the functionalism of the latter. Similarly, to the findings pertaining to asset allocation, these results suggest persisting difficulties on the part of public sector institutions to recruit specialised investment professionals in general and particularly when co-located with financial agglomerations. Chapter 5, proposed to expand on the issue.

Chapter 5 addressed the following research question: how can a frontier asset owner attract and retain talent?

This chapter proposed to address this question through a case-study of a large pension plan. It relied on 37 semi-structured interviews with the plan's investment staff triangulated with quantitative data on U.S. labour markets, CPI data and internal resources shared by employees. The plan studied is located in a small city hosting an inconsequential local financial sector with no providers of institutional investment services. It is 250 miles away from the nearest regional financial centre and 950 miles away from the nearest IFC. In spite of the considerable distance between the plan and specialised labour pools, the plan had consistently managed internally half of its 150bn+ USD with great success. While it has capabilities to bring a significantly larger proportion of its assets in-house, it made the active choice to keep a hybrid model corresponding to that described in chapter 3. The plan sizeable business potential has been instrumental in negotiating preferential fees as well as getting specialised external contractors to undergo 4h flights from major financial agglomerations with enough regularity to build and maintain quality relationships.

The case-study emphasised an ambivalence on the issue of compensation for public sector investment professionals. On one hand, the high accountability and transparency standards of government institutions were argued to safeguard the public's interests not only by limiting spending but indirectly temper income inequalities. As such, this democratic regulation of compensation placed healthy limits compared to the market exuberance observed in the private sector. On the other hand, these principled limits were argued to become counter-productive when set at

levels that effectively side-line government institutions from the war for talent as they give them no other recourse than to resort to privatisation. To move away from this politically loaded contention on the fairness and social utility of public and private sector institutions, the chapter brought forward two arguments: 1) putting pressure on salaries in a way that forces plans out of the market for talent and into outsourcing likely induces higher costs to taxpayers and goes into feeding inequalities produced by the industry's high rewards system; 2) to assess the real costs of insourcing and adapt recruitment practices, scholars and practitioners should recognise that market compensation for investment talent largely reflects IFCs and financial agglomerations' high costs of living, poor quality of life and sub-par work-life balance.

Whereas the economic geography literature recognises institutional differences emphasising a public-private sector gap in compensations, locational differences between IFCs and the frontier have been omitted in that respect. The results presented here suggested that commentators should refocus comparative income analysis on real wages. The argument was sustained in light of BLS data showing that the income gap between the frontier and IFCs is substantially lower than assumed when adjusting local nominal wages with local CPI data. For instance, it was showed that while the nominal premium in New York is 74 percent compared to the metropolitan area where the frontier institution of the case-study is situated, wage premium in real terms decreased to 38 percent excluding rent and was at a discount of 16 percent including rent.

The interview data suggested that the premium placed on co-location in large financial agglomerations is largely driven by ambitions of capital accumulation, both

by firms and workers. Since global circuits of capital keep converging towards a handful of key cities, IFCs provide large proximate pools of capital to co-located private sector investment management institutions. This locational advantage outweighs the costs premiums in physical infrastructure and payrolls. Since beneficiary institutions have captive clients, co-location with IFCs were suggested to primarily entail higher operational costs without agglomerative benefits. For workers, IFCs offer a compensation premium that promises to outweigh higher costs of living, extended working hours, long commutes due to traffic congestion and the high rent prices on central locations. Most of these financial and extra-financial costs are significantly lower at the frontier of finance and should be factored in wage comparison.

In spite of tight budgetary resources and distance, it was suggested that the frontier plan studied here managed to recruit talented investment professionals capable of managing internal and external mandates with superior investment results. Central to the recruitment of frontier talent was a strategy of differentiation emphasising distinctive organisational expectations about being at-work and local quality of life contrasting with the norms of finance jobs in IFCs. While expertise was represented across asset classes within the organisation, the plan made the strategic choice to have teams focusing on external contract management in hedge funds, private equity, and real estate and focus its direct investment capabilities on scalable and less human capital intensive asset classes in public markets. In terms of recruitment, the case study contributed to improve Dixon and Monk's typology of frontier talent of the greens, grey and grounded. In particular, the results showed that the organisation has largely focused on recruiting locally and train internally. On the other hand, it has been able

to hire a minority of experienced investment professionals from the private sector on the back of labour market contractions following the GFC. Notwithstanding the functional performance of the plan, the chapter concluded with a word of caution on the fragility of its talent model and the importance for sponsors to support their pension systems with budgetary resources consistent with investment objectives.

Chapter 6 addressed the following research question: what factors public pension plans should consider to insource their investment functions?

To answer this question, chapter 6 proposed to bring the contributions of the first three chapters together and develop analytical building-blocks to help public pension plans address the make-or-buy dilemma. As emphasised in chapters 3 and 4, although state and local pension plans have a homogenous mission, their institutional arrangements, local political and economic contexts vary significantly. With close to 4'000 individual plans scattered across the country, strict functionalist blueprints risk to be poorly adapted to particular circumstances. Striving for balance between scope and depth, the chapter offered six conceptual dimensions of insourcing for public pension plans. The framework allows to think about insourcing comprehensively and dynamically across a variety of circumstances. The six dimensions of insourcing include: cash-flows, economies of scale, asset allocation, compensation, location, and fiduciary duty and oversight. They emphasise the importance of financial economics, local politics, regulation, governance and geography in the make-or-buy dilemma.

Dimension one, cash-flows insisted on the necessary foundations to consider insourcing, highlighting the importance for sponsors to commit to support their pension systems financially. In particular, it is essential that sponsors demonstrate a long-term political commitment to maintain their DB systems with adequate budgetary resources and contributions. Unfortunately, without regulatory reforms, under-contributions will persist in times of budgetary deficits. However, sponsors should never transfer their responsibility as employers onto the investment functions of the plans as it will inevitably result in unreasonable capital market expectations and potentially dangerous asset allocations. As suggested, representing investment expertise inside pension institutions is fundamental to navigate these political interferences. Dimension two, economies of scale, expanded on the findings from chapter 4 arguing that commentators have generally set the bar too high when considering economies of scale in financial institutions. Instead of emphasising the role of total AUM, the dimension suggested that scale economies should be considered in relation to the investment objectives of the fund at the level of asset classes and individual mandates.

Dimension three, asset allocation, reviewed the substantive differences in technological infrastructure and human capital required to manage different types of financial assets. While there is growing evidence showing that plans may be better-off managing the bulk of their assets using passive strategies in public markets, this dimension acknowledges that the ambitious investment return objectives of public pension plans will keep them turning to private markets for superior performance. Generally, this dimension suggests that plans should focus their internal capabilities in efficient and liquid asset classes while delegating the management of complex

investments to external contractors. Given the difficulties experienced by small plans to generate adequate net of fees performances in alternatives and private markets, they may be advised to stay away from these asset classes entirely. Dimension four, compensation, stressed the current double standards in accounting practices that charge external investment expenses to plans' assets while charging internal staff payroll to legislators. This practice was argued to be central to the compensation gap observed between U.S. public plans and international peers; as suggested it also will likely increase the long-term costs to taxpayers and would warrant an open political conversation. Ultimately, as proposed in chapter 5, public pension plans should address the compensation gap while strategically differentiating their recruitment strategies to shelter from private sector talent market.

Dimension five, treated the issue of the location of public pension plans in relation to financial agglomerations and economies of scale. Small and distant plans were suggested to be in the weakest position to manage external mandates both in terms of fees and quality of oversight. Consequently, it was argued they may be better-off with building internal capabilities focused on scalable efficient and liquid asset classes while trying as much as possible to avoid complex outsourced strategies. Co-located plans were argued to be in a stronger position to maintain quality relationships with external contractors but to be in a weaker position to compete for talent on their local labour market. Ideally, small and co-located plans should aim for a hybrid model that combines in- and outsourcing, focusing internal capabilities on inexpensive asset classes; again, they may be better off staying away from complex mandates. On the other hand, as size gives more room for choice, large plans may prefer to use a hybrid model that strategically allocates internal resources towards direct investment in

liquid and efficient asset classes and use internal expertise to oversee external mandates in complex asset classes.

Finally, dimension six on fiduciary duty and oversight argued that internal capabilities are not just a way to reduce investment costs but should be considered as an integral part of sound governance in public pension plans. Having the technological infrastructure as well as investment expertise represented within the fund was suggested to guarantee fund wide oversight. Whereas, board level investment expertise constitutes a non-negotiable building block of pension plans' internal capabilities, insuring the representation of specialised expertise at an asset class level was argued to be paramount in managing external mandates, especially those entailing proprietary information.

7.4 Contributions to scholarship

Economic and financial geography

This doctoral thesis makes meaningful contributions to economic and financial geography on institutional investors and the asset management industry. By unveiling new properties of Dixon and Monk's (2014) frontier of finance, it proposes critical insights on agglomerative process in the production of investment returns. It contributes new insights on the relationship between economies of scale, asset allocation and financial institutions' location. Specifically, the findings suggest that scale economies may be better understood at an asset class level in reference to the location of decision-making relative to the geography of invested assets rather than

by considering the total scale of a financial institution (compare with Clark, 2000; Clark, 2008; Clark and Monk, 2013b; Clark and Monk, 2016).

Building on Clark and Monk's (2015) notion of “spatially extensive financial markets”, the thesis brings new perspectives on the declining relevance of co-locating decision-making with financial agglomerations to produce global and balanced investment returns. Instead, it emphasises the growing importance of expanded “knowledge platforms” (Bathelt and Cohendet, 2014), bridging distant territories through large technological infrastructures. As argued, public markets, the backbone of contemporary capital markets, are increasingly sustained by virtual investment spaces and undertaken by technologically intensive investment processes. With close to 3tn USD allocated by public pension plans to publically traded equities and fixed income instruments, “investment-at-a-distance” (Clark and Monk, 2013) may pose a previously underappreciated threat to IFCs’ dominance in these markets (compare with Dixon and Monk, 2014). To an extent, this gives weight to O’Brien's (1992a) and O'Hara's, (1995) thesis on the “end-of-geography”.

On the other hand, the thesis emphasises the limits of a place-less financial world in light of the enduring relevance of financial clusters in providing specialised tasks and functions. This view concurs with the work of economic geographers on regional specialisation (see for instance Wójcik (2012) on New York and Hall and Appleyard, 2009 on London in investment banking; Wójcik (2013) on New York and London in securitization and Dörny, (2014, 2016) on Luxembourg and the mutual funds industry). Although at this stage, the findings cannot point to specific territorial spaces, they show that private market investments and more generally investments

that call upon scarce and specialised decision-making remain territorially contained and less well suited to investment-at-a-distance. These findings give credence to the “knowledge region” thesis (Gertler, 2003) in the production of investment returns pertaining to complex financial market investments. They contribute to show a territorially contained geography of specialised investment knowledge. Here, the low digitisation of information and automation of investment processes maintain the relevance of “non-commodified information” (Clark and Monk 2013c) and workers’ skills and expertise. Since both thrive in close proximity they remain tangibly grounded around specialised clusters. By looking at the locational constraints posed by these dynamics to frontier investors, the thesis contributes new insights on uneven talent landscapes (see most notably Florida, 2002b; Mellander and Florida, 2012; Kerr *et al.*, 2016). Finally, by proposing an original conceptualisation of *frontier talent*, the thesis contributes to existing economic geography scholarship on the norms and practices underpinning finance jobs (see Bachher and Monk, 2012; Wójcik, 2012; Clark and Monk, 2014 on star-performers).

Pension economics, governance and regulation

This doctoral thesis also contributes to scholarship in pension economics, and the governance and regulation of public pension systems in the United States. On regulation and pension economics, the findings complement and link previous commentary on the pervasive use of projected investment returns to discount public pension liabilities. Concurring with Novy-Marx and Rauh (2009) and Brown and Wilcox (2009) on the masking effect of the practice they further enhance Andonov,

Bauer and Cremers' (2015) findings showing that not only it pushes plans to seek riskier investments it also lures them towards expensive external mandates.

This thesis also further contributes to the extended body of work proposed by Alicia Munnell and her colleagues on the important and intricate relationship between investment returns, employer contributions and the funding of U.S. DB pension systems (see Munnell, Haverstick and Aubry, 2008; Munnell *et al.*, 2014; Munnell, Aubry and Cafarelli, 2015). Finally, the thesis contributes to the important work proposed by Clark and Urwin (2008, 2017) on the governance of financial institutions by suggesting that insourcing offers promising features to improve the oversight mechanisms and performance of public pension plans. In particular, it reinforces the importance of representing financial expertise in a manner that is consistent with the objectives of investment institutions and aligned with the sophistication and the scope of contemporary financial market investments (see Clark, 2004; Ambachtsheer, 2007; Yang and Mitchell, 2005; Munnell, Haverstick and Aubry, 2008 and Andonov, Hochberg and Rauh, 2016).

7.5 Further research

The contributions of this doctoral thesis open interesting avenues for future research on the asset management industry in economic geography. In direct continuity of this thesis, one meaningful and sizeable endeavour would be to further map sub-sectors of the industry and enrich academic understanding on the geographical properties that explain the agglomeration of specialised information and expertise. While this

has been done with significance for IFCs (see for instance Clark, 2002; Cassis, 2006; Cook *et al.*, 2007) investment banking (see for instance Wójcik, 2012; Hall and Appleyard, 2009) and the mutual fund industry (Dörry, 2014, 2016), it would be interesting to translate these endeavours into asset class specific analysis. Particularly in asset classes such as private equity, alternatives and real estate that still largely escape automation and virtualisation and as such command a high premium on talent and access to information.

Interviewees who participated in the study presented in chapter 5 mentioned that a number of asset management boutiques are making the choice to locate their offices at the periphery of financial agglomerations to offer distinctive work-life balance to their investment staff. In relation to the remarks made on the different locational constraints relating to managing different asset classes, one can imagine that certain investment objectives may be better suited to this model than other. Technologically intensive investment strategies on virtualised markets might be well suited to this frontier model and less replicable in human capital and non-commodified information intensive ones. Since the GFC, capital allocation has markedly shifted from high-end securitized assets to more tangible assets concomitant with a general process of disintermediation. An instance of the trend has been observed as the hype around hedge-funds faded in favour of global investments in assets such as private equity, real estate and infrastructure. Hebb and Sharma (2013) and more recently Monk, Sharma and Sinclair, (2017) made a compelling case for asset owners to shift from securitized assets to more tangible investment such as infrastructure and real estate development projects. Direct investments in real estate and infrastructural projects require intensive presence on the ground to conduct appraisals and oversight. How

to place investment managers responsible for large scale investments across expanded territories is a difficult question.

AustralianSuper, a 60bn GBP private pension system, recently opened an office in London to directly manage its 400mn GBP stake in a 67-acre property development in King's Cross London. Several other western super-funds have also started looking at direct and co-investment opportunities in the Asia-Pacific region. Relying on spatially, culturally and economically distant providers or bear the costs of having boots on the ground is a significant dilemma for contemporary global financial institutions. While these geographical and institutional shifts in the logic of international investment practices respond to opportunities they also come with a set of new financial, economic and social challenges that ought to be addressed.

Just as the 1990's wide-spread adoption of electronic exchanges and commodified information changed the landscape of financial market investments, developments in financial technology hold a significant potential to keep redefining the map of global investment management and financial institutions. As tasks and functions of financial intermediaries become automated and integrated into technological infrastructures, workers embodied financial skills and expertise will become increasingly redundant. On the downside thousands of jobs will disappear. A recent Citigroup report predicted a net loss of 1.7 million finance jobs to automation over the next 10 years. On the plus side, these disruptions will decrease the costs of financial intermediation directly improving the retirement income of billions of prospective and current retirees. The integration of finance and technology holds socio-economic costs and benefits that ought to be researched in more details. In respect to asset management

and geography, these may well see the demise of financial agglomerations as we know them. These changes may for instance result in more fragmented networks of agents that relocate around technological clusters as the tech and the finance industry become increasingly integrated.

In respect to pension institutions there are also exciting and important avenues for future research. Touched upon in chapter 6, low costs strategies as implemented by the state of Nevada may provide an interesting third alley deserving further scrutiny. Instead of debating whether the current strategies of public plans that put a premium on active management should be served by internal or external resources, simplifying the investment processes of these institutions may offer an interesting simple solution to complex problems. While regulatory changes are paramount to implement any investment strategy, the “do nothing” model (NYT, 2016) focusing on a handful of passively managed mandates in public markets and very low turnover has merits that resonate very closely with those of insourcing. It is extremely low cost, insures timely oversight and, once in place, should be relatively well protected from political interferences given its long-term buy and hold motto.

While the findings infer from consensus and general practice that outsourced assets flow towards IFCs, it would be most interesting to actually map those flows between pension plans and investment firms. Although it would be a time-consuming endeavour, mandates can be retrieved manually from plans’ CAFR; once collected for an adequate sample, this data could be used to run a network analysis to map webs of external contracts in a more granular way and identify new spatial and temporal

patterns that would enrich academic understanding of competition and specialisation across asset classes and investment strategies.

One would also like to see research produced on the make-or-buy dilemma in the context of other types of financial institutions. Although data accessibility may be an issue, it would be interesting to rerun adapted versions of the model presented in chapter 4 on other types of asset owners such as corporate pension plans, SWF, endowment funds and foundations. Particular attention could be given on how different investment objectives and time horizons affect organisational arrangements in response to the make or buy dilemma. Finally, as DC plans are becoming widespread in the context of retirement asset management, it would be most interesting to assess how the fragmentation of assets across multiple investment solutions impacts cost management in general as well as the ability of these institutions to function without resorting entirely on external mandates. Indeed, another set of agency issues worth exploring may arise since sponsors are less inclined to monitor investment expenses directly charged to participants' assets. This once again emphasise the importance of participants' financial literacy in DC systems and would warrant dedicated scholarship.

7.6 Final remarks

Insourcing is not only a cost-efficient investment management model but it has the merit to bring back essential skills and expertise inside otherwise vulnerable financial institutions. Sound implementation is dependent upon careful considerations of the

possibilities to support global investment functions from different local environments. Geography surely matters in institutional asset management. As I have argued, placing the production of investment returns should be strategized in light of qualitative distinctions between different types and modes of financial market investments. Another key factor pertains to local sponsor's opportunistic transfer of their responsibility for contributions onto pension board's responsibility for investment returns. Ultimately, net risk-adjusted investment return objectives and investment strategies should never be distorted unreasonably by funding needs but rather be balanced with financial market prospects and costs of implementation. To safeguard the interests of pension stakeholders, it is central to insure a minimum of expertise and technological infrastructure are present inside the organisation. Ultimately, fiduciary duty and financial expertise should always prime in defining investment strategies and help trump conflicting and hidden agendas.

Assuming that expertise is adequately represented amongst decision-makers, smaller structures have a legitimate claim to strategically build internal investment capabilities. Since public markets remain the backbone of financial markets and asset owners' portfolios, there is an untapped potential for smaller plans to bypass financial intermediation for the larger part of their investments at reasonable expenses. While it may come at superior direct costs to those charged by large scale external contractors, they may be justified as they would allow to bring in currently underrepresented financial expertise that is translatable into fund-wide oversight capabilities to support better decision-making. Given the wide-spread virtualisation of financial markets, asset owners should increasingly be able to perform at-a-distance. Whereas a minority of co-located plans face adverse circumstances to

measure-up in the industry's war for talent, distant plans, making the majority of public pension plans in the U.S., should remember and leverage the fact that asset owners and arguably investment professionals may ultimately be better-off at the frontier of finance.

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ABBREVIATIONS

| | |
|------|---|
| ARR | Assumed rate of return |
| ARC | Annual required contributions |
| BLS | Bureau of labour statistics |
| bn | Billion |
| .com | Internet bubble of 2001 |
| CPI | Consumer price index |
| DB | Defined benefit |
| DC | Defined contribution |
| ETF | Exchange traded funds |
| GASB | Governmental accounting standards board |
| GDP | Gross domestic product |
| GFC | Global financial crisis of 2008-09 |
| HRM | Human resources management |
| IFC | International financial centre |
| mn | Million |
| P&I | Pensions and Investments |
| SWF | Sovereign wealth fund |
| tn | Trillion |

APPENDIX

Hereafter are presented the detailed rationale and expectations for each variable included in the regression analysis in section “data and methodology” (4.6) from chapter 4 *Autarky in state and local pension plans: a test of the make-or-buy thesis*.

1. Total membership: the variable allows to test the importance of economies of scale; generally, commentators expect larger plans to manage a larger proportion of their assets internally.
2. Demographics ratio: the variable allows to control for the importance of the demographic distribution of a pension plan’s members. I expect plans with larger proportion of retirees per active members to be less inclined to invest in the required infrastructure and manage employment contracts to invest assets internally as their total assets are declining from cash outflows to pay-out benefits.
3. Home bias of asset allocation: the variable allows to test for the importance of the geography of asset allocation. I expect pension plans to have a preference to manage domestic assets in liquid and efficient asset classes since they tend to be more scalable and less expensive to manage compared to non-domestic, illiquid and inefficient asset classes.
4. Complexity of asset allocation: the variable allows to test for the importance of the geography of asset allocation. With the same rationale in mind, I expect the reverse effect observed for the home bias of asset allocation.
5. GDP, metro: the variable allows to control for local economic activity at the statistical metropolitan area level. I expect plans that find themselves in less vibrant

economic environments to rely more extensively on external contractors as they may have difficulties in attracting and retaining specialised investment professionals around less economically developed areas.

6. Unemployment, metro: the variable allows to control for the effect of unemployment at the statistical metropolitan area level. Again, high unemployment levels may make the area less desirable for specialised investment professionals and increase recruitment difficulties pushing plans towards external contractors; unlikely but local governments may conversely build governmental capabilities to create local jobs.

7. Finance and insurance % of GDP, metro: the variable allows to test for the effect of being co-located with a vibrant local financial sector at the statistical metropolitan area level. I would expect plans embedded in areas where the financial industry is most prevalent to have more difficulties to attract investment professionals as they have to compete locally on the basis of discounted compensation.

8. Co-location with IFC, 100 miles (dummy): the variable allows to test for the effect of being co-located with an IFC. Similarly, to variable 7, proximity may cause difficulties in attracting specialised labour; additionally, since IFCs provide competitive institutional investment services, proximate plans may be more inclined to outsource as they have the best in the business at their door step and can maintain a higher quality relationship with regular face-to-face interactions than distant plans can.

9. State government debt to GDP ratio: the variable allows to test for the effect of budgetary deficit. I expect deficit to increase outsourcing. This is because expenses on external investment management are charged directly to plans' assets whereas expenses on internal capabilities are charged to plans' sponsors. With that dynamic in

mind, outsourcing may be a way to reduce annual government expenses (not long-term expenses).

10. State government employees: this variable allows to control for the extensiveness of the state government workforce. I expect government with a larger public sector workforce to be more inclined to insource investment functions as opposed to resort to privatization.

11. Funding ratio, $n-1$: this variable allows to control for the effect of funding performance. I expect poor funding to be associated with outsourcing as plans seek external help and may want to transfer responsibility onto external contractors.

12. Investment return 5 years: this variable allows to control for the effect of investment performance. I expect poor performance to be associated with outsourcing as plans seek external help and may want to transfer responsibility onto external contractors.

13. Assumed rate of return (ARR): this variable allows to control for the effect of expected returns. I expect plans with ambitious investment return targets to be more inclined to seek external help as star-performers are too expensive for public pension to hire but can be contracted out via investment management contracts.