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Michael A. Urban 

ABSTRACT

Thwarted by the failures of investment managers and consultants, institutional investors are increasingly interested in bypassing private contractors to invest their assets. State and local pension plans, which face unfunded liabilities worth US\$1.2 trillion, could save billions of taxpayers' money annually by insourcing long-term direct investments in private markets and by outsourcing their public markets investment to low-cost passive fund providers. Hitherto, there is little comprehensive evidence on their actual practices in both respects. This paper addresses this gap empirically. It assesses the investment strategies of a sample of 31 state and local pension plans in conjunction with the evolution of 12 leading national asset management centres (AMCs) between 2006 and 2012. The results show that public pension funds manage close to one-third of their assets in-house. Preliminary econometric analysis shows the significance yet limited influence of economies of scale and suggests that geographical distance from AMCs is associated with higher levels of insourcing. Overall, state and local plans display a high degree of institutional and geographical heterogeneity. In light of these findings, it is argued that public pension management is to a large extent driven by bottom-up local political processes that undermine the implementation of sound investment management arrangements.

KEYWORDS

financial geography; asset management; state and local pension plans; insourcing; outsourcing

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INTRODUCTION

According to the Organisation for Economic Co-operation and Development (OECD), world-wide pension assets amounted to US\$39.5 trillion in 2016, a 52% increase since 2006. With assets large enough to own one-quarter of the outstanding debt and equity securities globally, pension funds are key actors in contemporary capitalism and represent a strategically important clientele for the financial industry (Clark, 2000). Notwithstanding impressive growth in the size and number of pension funds worldwide, the distribution of pension infrastructure through space remains highly uneven. In 2016, 87% of the world's pension assets were found in Western countries with a strong history of pre-funded pensions; the United States alone accounted for nearly two-thirds of global pension assets. Used extensively by US policy-makers to attract and retain military personnel and

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public sector workers throughout the 19th and 20th centuries (Clark, Craig, & Wilson, 2003), pre-funded pension systems have indeed a comparatively long-standing history in the United States.

At the end of 2016, the US census accounted nearly 4000 state and local pension plans managing a total of US\$3.74 trillion on behalf of 25 million members (Vidal, 2017) – just short of 10% of global pension assets. Although growing public pension assets have been shown to present opportunities for governments to compensate investment gaps in local infrastructure, real estate and green technologies (Hebb & Sharma, 2013; Monk, Sharma, & Sinclair, 2017), the shadow of growing pension liabilities poses significant fiscal and political threats to state and local sponsors. In 2016, CalPERS, the largest public pension plan in the United States, managed just short of US\$300 billion and ran a funding deficit of US\$139 billion. Managing this deficit poses a sizeable public administration challenge paved with political pitfalls. In a recent report CalPERS' executives were alleged to misuse the fund's large financial resources at the expense of Californian taxpayers to score political points. In particular, the report pointed to dubious actuarial assumptions aimed at artificially improving the funding of the plan and faulted unqualified board members for favouring underperforming environmental, social and governance investments as well as corporate governance programmes for political gains (Doyle, 2017). CalPERS responded by stating the report's claims were based on 'loosely-related facts to subliminally promote an anti-pension ideology' (CalPERS, 2017).

CalPERS' heavy politicization is hardly an isolated case. Indeed, the political pressure on public pensions is mounting as many plans across the country find themselves in precarious financial positions. Unfortunately, the problem of pension underfunding is often aggravated if not created by agency problems. To be sure, pension experts widely recognize that most public pension plans suffer from a significant governance deficit (Ambachtsheer, Capelle, & Lum, 2008; Clark & Monk, 2014). While political interferences and broader governance issues are widespread and often at odds with the interests of pension members and taxpayers, it should be noted that the funding difficulties faced by individual plans are unevenly distributed across space and time. Although the last financial crisis has led to significant write-downs on all public pension funds' assets (Munnell, Aubry, & Cafarelli, 2015), the market collapse of 2008–09 fails to explain public pensions' underfunding fully. Amongst the 20 largest public plans in 2016, one finds almost recovered and well-funded institutions such as New York State and Local as well as plans on the verge of bankruptcy such as Illinois Teachers which runs a deficit of over 60% of projected liabilities (The Center for Retirement Research at Boston College, 2016).

This unevenness is a product of federalism and the resulting multiplicity of state and local government pension arrangements. Indeed, the management of state and local government workers' pensions is devolved to state and local sponsors. In the absence of federal regulation, state and local pension management is subject to local bottom-up processes featuring tremendous variety across and within state boundaries. To be sure, public pension plans differ considerably in terms of size (some manage millions, others hundreds of billions) and feature varied governance structures (see Dobra & Lubich, 2013; and Yang & Mitchell, 2005, on the large cross-sectional differences in board size and composition). Each plan is also embedded in different fiscal contexts. Munnell et al. (2015) showed that sponsors running larger budgetary deficits exacerbate pension underfunding by under-contributing to their pension systems.

Without a doubt, public pension management has become increasingly intertwined with the fate of state and local governments. In December 2013, the state of Illinois, on the verge of bankruptcy, went so far as to vote an assembly bill to override constitutional protection and revoke its pension promises. 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. (Supreme Court of Illinois, 2015, p. 27)

Perhaps the most important take away from the Supreme Court's decision is that pension funding crises are hardly accidental but result from persistent management failures. Notwithstanding a handful of exceptions, most public pension plans need to strengthen their financial position if their sponsors are to elude Illinois' fate. In 2016, the 150 largest public pension plans ran a 24% average funding deficit (The Center for Retirement Research at Boston College, 2016). While there are no shortcuts to making adequate (sizeable) contributions, there is a growing body of scholarship showing untapped opportunities for pension funds to make savings on investment costs. In particular, recent studies have shown that cutting back on external contractors' fees could provide significant cost savings (Dixon & Monk, 2014; Hooke & Walters, 2013; MacIntosh & Scheibelhut, 2012; Urban, 2018b).

At the national level, Hooke and Walters (2013) estimate that US\$9 billion of investment fees are paid by public pension plans to private sector contractors every year. Reducing pension investment expenses could go a long way to reducing pension deficits across the country and improve the finances of states, cities and municipalities. A global study of 19 large pension funds located across America, Europe and Canada showed a 36-basis point increase in net value creation for every 10% increase in internally managed assets (insourcing) (MacIntosh & Scheibelhut, 2012). Equally, cutting active management expenses and investing pension assets through passive index-trackers could lead to significant cost reductions (Coe, Lai, & Wójcik, 2014; Malkiel, 2013).

While the advantages of insourcing and passive investments appear to be compelling, there is no systematic scholarly research on how these strategies might be deployed in public pension systems. The paper addresses this gap empirically and is organized as follows. The next section reviews an interdisciplinary body of literature to set the stage for the empirical contribution. In light of dedicated research on public pension plans, I argue that public pension management is subjected to diverse local bottom-up processes that entail significant political interferences. Consequently, I expect organizational arrangements including plans' responses to the 'make versus buy' (Baker & Hubbard, 2003) dilemma (the choice between in- versus outsourcing) to reflect these local processes. As such, I expect pensions' organizational arrangements to be spatially variegated. I then contrast this idea with macro-processes of homogenization in institutional financial market investments. The second section reviews economic and financial geography scholarship to propose a critical evaluation of the locational dimension of the make-or-buy dilemma in the context of public pension asset management. Here, I suggest that co-location may be less important than 'global financial network' (Coe et al., 2014) connectivity. The argument is nuanced in light of qualitative differences between different types of financial market investments (active versus passive and private versus public markets). The third section is dedicated to an empirical study of a sample of 31 state and local pension plans and 12 asset management centres (AMCs) for the period 2006–12. Building on the literature review, I propose to test two key hypotheses, namely economies of scale and the centripetal forces exerted by AMCs on state and local pension plans. The remaining part of the empirics offers descriptive empirical insights on how state and local plans allocate their assets between in- and outsourcing through space and time. The last section concludes.

RESCALING: FROM LOCAL POLITICS TO GLOBAL FINANCIAL MARKETS

Rescaling 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 levels. The first is institutional and interested in transformations in the contractual relations between public pension plans and private sector asset managers. Institutional rescaling describes an operational change. It occurs when pension plans terminate external management contracts and insource all or part of their investment processes or outsource internal investment management functions to private contractors. It refers to what Brenner (2009) called a 'process

of institutional reorganization' (p. 135). The second is geographical. Geographical rescaling captures how this institutional transformation triggers a territorial shift of public pension management activities away from large AMCs towards distant and fragmented locations where state and local plans are located. Geographical rescaling describes a spatial reconfiguration triggered by moving outsourced assets toward local internal capabilities, and vice versa.

Before studying rescaling empirically, I first introduce some basic mechanisms underpinning the management and administration of state and local pension plans. Here, I argue that such mechanisms are concomitantly shaped by heterogeneous local political dynamics as well as more homogenous financial market norms and practices. In respect to the former, there is a significant body of literature showing important local and national public pension governance and regulatory shortcomings in the United States. Coronado, Engen, and Knight (2003) note that because plan participants do not bear market risks in pre-funded pension plans, they are also less inclined to monitor management performance. The lack of members' scrutiny makes public pensions more vulnerable to political interferences. Furthermore, Jenkinson, Jones, and Martinez (2016) argue that outsourcing may provide scapegoats to elected and appointed officials looking to transfer their responsibility for poor performance onto external contractors.

These agency issues are comparatively more significant in the US public sector (compared with private sector pensions in the United States and public sector pensions in other jurisdictions) and result, first and foremost, from lax and insufficient regulation (Brown & Wilcox, 2009) – interestingly, private sector pensions in the United States are subject to higher regulatory standards set at a federal level. For instance, Munnell et al. (2015) have shown that sponsors running larger deficits tend to under-contribute to their pension systems to juggle between competing public spending priorities. This pattern was most prevalent in the aftermath of the economic recession that followed the 2008–09 financial crisis as governments experienced falling tax revenues. This regulatory laxity allows US public pension funds to be chronically underfunded. In comparison, Dutch pension funds are required to be funded at 105% at all times. Interestingly, and as illustrated above with the case of Illinois, constitutional limits prevent sponsors from altering their pension promises, yet fail to require minimum standards on the means to achieve them.

Consequently, sponsors tend to use if not abuse regulatory leeway to kick the can down the road and reallocate budgetary resources that should go into funding pensions towards less politically costly endeavours. Although state and local governments are major employers accounting for 12.5% of the national workforce,¹ funding public pension systems chronically trails behind other public interests such as health, safety, education or transport. To regulatory laxity, one must add the people problem of governance in public pension systems. Most notably, boards of trustees were repeatedly shown to lack investment expertise leading to poor investment decisions and lower funding ratios (Dobra & Lubich, 2013; Munnell, Haverstick, & Aubry, 2008; Yang & Mitchell, 2005). In addition, more insidious political interferences were shown to have direct negative implications on the asset management practices of public pension plans. For instance, *ex-officio* pension board members (those appointed by elected officials) were shown to allocate investment management contracts to private equity managers in exchange for political donations (Andonov, Hochberg, & Rauh, 2016).

Importantly, these regulatory and governance shortcomings are expressed in various ways across different local economic, fiscal and political contexts. As such, they are likely to generate a high degree of organizational localism and yield wide-ranging asset management arrangements – from totally insourced to totally outsourced, through various hybrid arrangements combining in- and outsourcing. These variegated bottom-up processes are conjoined by macro-processes of homogenization in institutional financial market investments. The 'science of finance' (Merton & Bodie, 2005), largely underpinned by neoclassical finance (Ross, 2004), still overwhelmingly regulates pension funds' investment processes. Dominant theories such as the modern portfolio theory (MPT) and the capital asset pricing model (CAPM) will lead plans to have fairly

homogenous asset allocations. Diversification and risk-management principles will push plans to invest heavily in liquid asset classes, mainly public debt and equity markets of developed economies and seek ancillary returns in private markets and developing economies.

These quasi-scientific prescriptions are produced and reproduced by hegemonic institutions of global finance. Finance professionals are known to evolve in highly normative contexts that nurture standardized educational backgrounds and professional networks (Hall & Appleyard, 2009). These self-referential normative tendencies generate what DiMaggio and Powell (1983) call 'professionalization' and 'mimetic' behaviours. Furthermore, the uncertainty inherent to financial markets investments tends to reinforce such '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' (p. 152). Highly visible and successful pension plans may provide organizational blueprints for other less visible and less successful ones. Generally, one can expect fairly homogenous asset allocations (*what* and *where* pension plans invest in) yet see significant variations in strategic choices (*how* pension plans invest – insource versus outsource and active versus passive).

MAKE-OR-BUY: A LOCATIONAL DILEMMA

Reflecting sponsors' desire to maintain a strong political proximity with their pension systems, state and local pension plans' headquarters are almost invariably found in their administrative capital. As such they have a fragmented spatial organization contrasting sharply with the geography of the financial industry which rests on a web of intensely networked agglomerations (Coe et al., 2014; Haberly, MacDonald-Korth, Urban, & Wójcik, 2018). Since part of pension systems' mandate is to invest large pools of money globally in diversified financial instruments, prioritizing political rather than industrial proximity may constrain the investment process. In particular, purchasing financial products and services from providers agglomerated in AMC's or attempting to replicate them from 'home' equally entail significant challenges.

I use two examples to illustrate this 'make-versus-buy' (Baker & Hubbard's, 2003) locational dilemma. Take the Public Employees' Retirement Association of Colorado, which is headquartered in Denver and manages US\$35 billion of pension assets. One might wonder how the trustees can adequately select and oversee private contractors located in AMC's such as San Francisco and New York City which lie 779 and 1105 miles away from 'home' respectively. Equally, considering the relative underdevelopment of Colorado's financial industry, it is difficult to conceive how the fund could staff its organization with the required expertise to invest US\$35 billion on global financial markets. The New York City Employees' Retirement System, headquartered in Brooklyn, just two miles from Wall Street, faces the other end of this locational dilemma, which presents different yet equally significant challenges. In particular, recruiting investment professionals whilst subject to public sector budgetary constraints, known to be particularly stringent in the United States (MacIntosh & Scheibelhut, 2012), may prove difficult if not impossible in a city where private sector firms pay amongst the highest salaries in the industry (Wójcik, 2012). On the other hand, close proximity with a leading AMC may improve the fund's ability to search, select and oversee external contractors.

A first elaboration addressing this locational dilemma was proposed by Dixon and Monk (2014). Interested in the spatial organization of large institutional investors including pension funds and sovereign wealth funds, which are often found outside financial agglomerations, the authors discussed grassroots experimentations with disintermediation and insourcing at a distance. They coined the phenomena *frontier finance*. In particular, their thesis suggested that rather than try to replicate internally the stock-picking services offered by conventional asset managers, institutional investors could compete asymmetrically by investing directly in long-term projects in private markets (see also Hebb & Sharma, 2013; and Monk et al., 2017). However, their results

suggested persisting difficulties amongst frontier investors in their efforts to bypass financial providers in financial centres. A key problem stressed by the authors is that investment opportunities for direct investments remain too small relative to the sheer size of most pension funds. The authors concluded their study by emphasizing ‘the enduring forces of centralization in global financial markets and the importance of agglomeration economies in the market for financial services’ (Dixon & Monk, 2014, p. 852).

One limitation of this first empirical stab at gauging the extent of frontier finance is that it rests on case studies of funds featuring significant geographical and institutional differences. As such, it is difficult to discern between different types of causal mechanisms. As argued above, in the case of US public pension systems, local bottom-up processes seem to be of great significance. For instance, MacIntosh and Scheibelhut (2012) showed that investment as well as back-office staff in public pension funds in the United States receive the least competitive compensation packages relative to Canada, Europe, Australia and New Zealand. This has been argued to prevent many US public pension plans from insourcing their investment functions as they find it difficult to recruit qualified personnel (Urban, 2018a). On the other hand, Canadian public pension funds have harnessed enough political support to function very similarly to private investment firms. Known as the ‘champions of insourcing’, they benefit from a generous operating budget that allows them to comfortably staff their organization and bypass contractors (The Boston Consulting Group, 2015; *The Economist*, 2012). To be sure, all frontier investors are not created equal: while the centripetal forces of financial agglomerations may explain a preference for outsourcing, cross-country and regional regulatory and political differences may be equally important.

Another important yet understudied tenet of the frontier finance thesis relates to the evolutionary trajectory of the geography of asset management. Literature in financial history and financial geography has been particularly prolific in analyzing the emergence and resilience of international financial centres (Cassis, 2006; Engelen & Grote, 2009; Wójcik, Knight, & Pažitka, 2017), their locational competitive advantages, their complementarity and their highly networked organization (Coe et al., 2014; Dörny, 2015; Wójcik, 2013). Notwithstanding rising stars to the East (e.g., see Lai, 2012, on Shanghai, Beijing and Hong Kong), London and New York have been shown to have consolidated their dominance in Western and international finance (Wójcik, 2013). At odds with the 1990s’ ‘end-of-geography’ thesis (O’Brien, 1992), contemporary analyses contend that not only do place and space continue to matter for financial institutions (O’Brien & Keith, 2009) but also agglomeration remains the prevailing logic underpinning the spatial organization of the industry.

While geographical concentration has notably increased at the firm and city level, technology has enabled incumbents to expand and diffuse their territorial reach. Indeed, rather than redraw financial geographies, information and communication technologies have intensified cross-border relational capabilities. In asset management, in particular, the industry has been shown to have concomitantly gone through an unprecedented consolidation process (measured by headquarter locations) and a technologically enabled centrifugal redistribution of strategic activities (intra-firm spatial organization). By acquiring assets from distressed European banks in the wake of crisis and harnessing huge economies of scale through big data analytics and ‘digital asset management platforms’, a handful of US fund managers have come to dominate the asset management industry (Haberly et al., 2018).

With this highly integrated territorial expansion of the financial world, replicating the industry’s tasks and functions internally poses new challenges. Given the complementarity and the spatial extensiveness of this global financial network, it has been suggested that local asset owners have traditionally preferred to piggy-back on the industry to invest their assets (Clark & Monk, 2013a). 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. This line of argument would suggest that

the centripetal forces exerted by the industry emanate less from specific territorially bounded spaces (financial agglomerations) than from an intangible, dispersed and complex network of institutions.

To be sure, *where* an investor is might matter less than *how* they are connected to the network. This contrasts with the idea that co-location is achieved by being physically present in major financial agglomerations. Although physical presence in financial agglomerations may still be relevant for face-to-face intensive client relationships and investments that rely on non-commoditized information, one should be wary of overplaying the importance of co-location for pension funds. Indeed, arguments in favour of co-location in the private sector often value proximity from a commercial perspective (proximity to clients; see, for instance, Cook, Pandit, Beaverstock, Taylor, & Pain, 2007, on the City of London) rather than an operational one (proximity to contractors and markets).

Private sector financial institutions compete over future cash flows through the acquisition of clients' new money as well as investment returns; while they are interdependent, there can be times of decoupling when the former compensates losses on the latter. This results in a situation where asset managers can still make a profit when their clients are experiencing net investment losses. For instance, BlackRock has managed to maintain profit margins above 20% every year throughout the crisis from 2006 to 2016. To be sure, in asset management future cash flows are highly dependent on establishing durable relationships with clients. While face-to-face interactions might still 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 services.² As such, their performance is only evaluated on their ability to generate risk-adjusted investment returns.

To what extent co-location improves risk-adjusted investment returns remains a somewhat more open empirical question. Urban economists and financial geographers have argued for different modes of co-location in that respect. Coval and Moskowitz (2001) showed that active investment managers can outperform the markets by locating their investment management operations in close proximity to the firms they invest in to benefit from local information advantages. On the other hand, Dixon and Monk (2014) suggested that investment managers are best located where financial securities are emitted and traded, that is, leading financial centres with securities exchanges. Finally, Clark and Monk (2013c) toned down the importance of co-location, arguing that financial information and transaction technologies have 'made internal portfolio investment-at-a-distance possible' (p. 1326).

This latter argument is particularly significant for financial market investments with low place-specific informational content (Clark & O'Connor, 1997). Passive investments vehicles including index trackers and exchange traded funds are prime examples. By free-riding the price discovery efforts of active managers (Haberly & Wojcik, 2017), passive funds offer a cheap, liquid, relatively efficient³ and highly spatially mobile investment solution. They can be bought and sold timely from any location with an internet connection. They rest on a large technological infrastructure and little human capital insuring maximum scalability and minimum overhead costs. Driven by technological innovation, the rise of passive investment provides a response to a decade of growing investor criticism directed at active managers' systematic failure to beat market indices and compensate for overhead costs (Coe et al., 2014; Haberly & Wojcik, 2017; Malkiel, 2013). In 2017, the iconic US investor Warren Buffet estimated that US\$100 billion had been 'wasted' on high Wall Street fees over the last decade (Buhayar, 2017).

Malkiel (2013) notes that passive equity funds tracking the S&P500 cost about 5 basis points compared with 55 basis points (institutional rate) for an actively managed fund benchmarked against the same index. As such, an active manager investing in US large-caps would have to generate an outperformance greater than 50 basis points to remain competitive. Overall, the evidence suggests that active managers consistently fail in the task. Already in 1975, Ellis found that 85% of

active managers underperformed the S&P500 after costs. More recently, a report published by S&P Dow Jones Indices found that more than 92% of US active managers underperformed their respective benchmarks (S&P Global, 2017).

Growing discontent with active management, technological progress and the post-crisis industry consolidation described above have provided a very fertile ground for the rise of oligopolistic passive investment providers. By harnessing technology enabled economies of scale, the ‘Big-Three’ (BlackRock, Vanguard and State Street) now control over half the market for index funds and over three-quarters of exchange-traded funds. Thanks to unprecedented economies of scale (enabled by market concentration and technology) fees on passive investment have fallen sharply over the last decades. Urban (2018a) shows that the costs of passively managed US mutual funds have fallen by 67% between 2000 and 2016 (compared with a fall of 24% for actively managed US mutual funds). Most recently, passive fees are nearing zero. Indeed, in 2018, Boston-based Fidelity went insofar as to launch the first two zero-fees passive investment funds (*Financial Times*, 2018).

Interestingly, passive investment funds offer an important third investment model that augments the base-case dilemma of outsourcing active management versus insourcing direct investments as proposed by Dixon and Monk (2014). By opting for a mostly passive investment strategy outsourced to the Big Three, pension plans could run very low-cost and low-maintenance outsourced investment operations. The Public Employees’ Retirement System of Nevada is a pioneer in this space. The fund invests over 90% of its US\$36 billion in indexed funds using a single investment advisor contracted to oversee a highly concentrated selection of external managers (10 in total). In 2016, the Nevada fund paid US\$18 million in total annual fees – a meagre 5 basis points (The Wall Street Journal, 2016).

Although passive investments offer compelling cost savings, the data suggest that most state and local plans keep turning to active managers in search of superior investment returns. Digging into the investment expenses of 33 large state pension plans for 2014 reveals very high fees overall. On average, this cohort of plans spends 49 basis points in investment fees – nearly 10 times that of Nevada. Taking Malkiel’s (2013) estimates that public plans pay 55 basis points for active management, one can estimate public plans have a 90%–10% active–passive allocation which is somewhat lower than the US investment community as a whole (the US mutual funds market had an 85%–15% active–passive split in 2014). However, as shown in Table 1, there is a very high degree of heterogeneity in investment expenses within and across plans’ size cohorts which suggests a high degree of heterogeneity in plans’ active–passive allocations.

It is interesting to note that, at first glance, economies of scale do not appear to drive differences in the fees paid by pension plans. Rather, these are likely to be driven by substantial differences in asset allocation (between passive and active, in particular), differences in the negotiating abilities of different institutions (the people problem of governance) as well as more perverse political interferences (external contracts exchanged for political favours). Paradoxically, state pension

Table 1. Investment fees for a sample of 33 state pension plans, 2014.

State plans cohorts, by total assets	Average fees paid by size of cohort (as a percentage of total assets)	Range of fees paid by size of cohort (as a percentage of total assets)
US\$1–20 billion	0.45%	0.10–1.70%
US\$20–50 billion	0.52%	0.10–1.56%
US\$50–100 billion	0.59%	0.39–0.76%
US\$100–300 billion	0.46%	0.34–0.58%

Source: Author’s calculations on data from The Maryland Public Policy Institute.

plans paying the largest investment management fees were also shown to underperform their peers consistently (Hooke & Walters, 2013). One might ponder why state and local plans keep paying for expensive investment solutions widely acknowledged to be ‘fruitless’ (Jenkinson et al., 2016).

Here again, loose regulation could be the culprit. Indeed, state and local plans are allowed to use projected investment returns to discount their liabilities. This is a highly unusual practice which contrasts with US corporate pension plans as well as most public and corporate plans outside the United States which are required to use a function of interest rates. This creates a significant incentive for plans to target ambitious market returns to improve their funding. According to the data collected by The Centre for Retirement Research at Boston College, in 2016 the average target return of a sample of 168 large state and local plans ranged from 5.5% to 8.5% and averaged 7.6%. These ambitious targets come with increased risk appetite and push plans towards more expensive actively managed investments in alternatives (Andonov, Bauer, & Cremers, 2013). According to a study by The Pew Charitable Trust (2017), US public pensions systems have increased their allocation to alternatives (including private equity, hedge funds and real estate) from 11% to 25% between 2006 and 2014. Investments in alternatives have been shown to be directly associated with higher investment expenses (Urban, 2018b) and are most likely to be outsourced to private contractors for reasons explained above (place-specific informational content and compensation differentials between the private and public sector).

DATA AND METHODS

The following study is largely quantitative. It addresses the shortage of evidence on the in- and outsourcing strategies of state and local plans and offers the first systematic empirical test of Dixon and Monk’s frontier finance thesis. The shortage of quantitative research on the subject is, at least in part, due to the lack of comprehensive data set. Amongst existing resources, the US Census Bureau provides an annual review of nearly 3998 state and local plans. While the number of variables on offer is large, the data are aggregated at state and local levels, and thus do not allow for plan-level analysis. The Centre for Retirement Research at Boston College (CRRBC) provides a database covering a much smaller sample of 150 individual organizations, allowing users to make specific queries on a large set of variables at plan level. While the CRRBC data set provides a wide array of metrics, it does not provide asset management data such as asset allocation, operational and management costs and does not provide data on how plans allocate their assets between internal management and external contractors.

Pensions and Investments (P&I), a New York-based news and research provider, offered instrumental support to this research by sharing their proprietary pension fund database. The P&I database provides systematic cross-sectional time-series of state and local plans’ membership size and composition, asset allocation, income statement and funding status. In addition, P&I provides unique plan-level data on the nominal assets managed internally by pension plans. Using this data set, I derive an internal capabilities ratio (ICR) to probe the significance of insourcing for each plan for each year. ICR is summarized as follows:

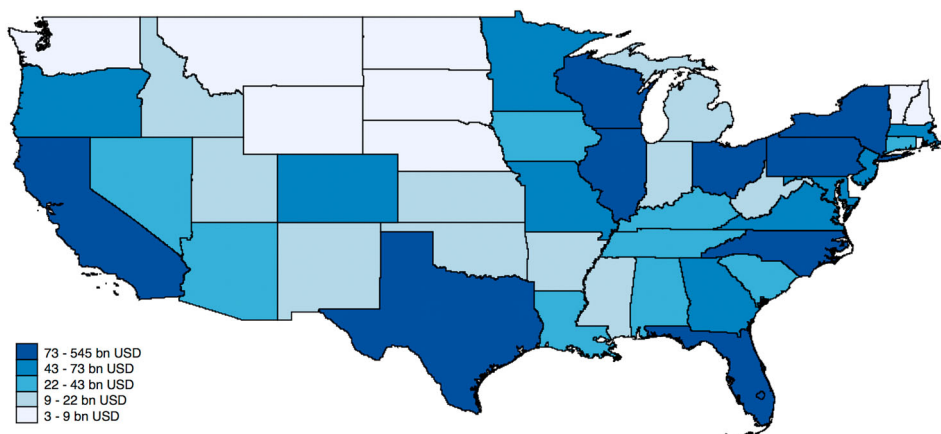
$$ICR_{it} = \frac{\text{Assets managed internally}_{it}}{\text{Total assets}_{it}} \quad (1)$$

The ICR variable is used as a dependant variable in a random-effects panel regression model. It is also further used to generate cross-sectional and longitudinal descriptive statistics. Different institutional and regional aggregations of the ICR allow rich spatio-temporal insights on public pensions’ asset management practices. The initial sample includes 182 state and local pension plans with over US\$1 billion of assets under management for the period 2006–12. Sixteen frozen and closed plans as of 2012 were removed from the sample. This larger sample of 166 plans is used in

To gauge the centripetal force of AMCs on the make-or-buy dilemma, I manually collected data on the size of the country's main AMCs and the distance between each plan and their closest AMCs (measured in commuting time). To obtain a proxy for the importance of AMCs, I recovered firm-level data from Willis Towers Watson's annual reports on the world's 500 largest asset managers for 2006 and 2012. The assets under management of the largest US-based assets managers listed in each report were aggregated at a city level (based on headquarters) for both years. Commuting times were approximated using Google Maps and Google Flights. Although a larger sample and a longer time-series would help improve the robustness of the analysis, the combined data sets offer a good starting point for basic econometrics and descriptive statistics.

As shown in [Figure 1](#), the majority of state and local plans' financial assets originate from outside the country's financial agglomerations; this is fundamental in understanding the locational dimension of the make-or-buy dilemma for public pension plans. Indeed, most plans face the dichotomous choice either to outsource the management of their pension assets to distant private contractors or to manage them at a distance through insourcing. Unsurprisingly, the largest states in terms of population size also manage the largest public pension plans in the country. California, Texas, Wisconsin, Illinois, Florida, North Carolina, Ohio, Pennsylvania and New York make up the first quartile in terms of total assets. The rationale is straightforward: a larger population equates to a larger public sector workforce (excepting a handful of states such as New Mexico and Nevada).

At a city level, of the US\$2.8 trillion of public pension assets (total assets for 166 state and local plans observed in 2012⁵), less than 10% originated from the country's major financial agglomerations. New York City was home to US\$127 billion, Boston US\$58 billion, Chicago US\$36 billion and San Francisco US\$16 billion. This observation shows that there is tremendous financial power, of over US\$2.5 trillion, tied to sponsors and beneficiaries located outside the country's leading centres of finance. To test the extent of the centripetal forces exerted by AMC's on this



Source: Author's calculations on data from the P&I proprietary database.

large community of frontier pension plans, I propose to test the relationship between plans' ICRs and plans' proximity to the country's largest AMC. The size of AMCs is estimated by aggregating the assets under management of the largest US-based asset managers by headquarter locations at a city level. Figure 2 shows the country's 12 largest AMCs as well as the location of the 31 state and local pension plans included in the final sample derived from P&I's data set.

The first thing to note with regards to AMCs is the Northeast corridor's remarkable dominance. Together, New York, Boston and Philadelphia (which have experienced amongst the largest growth in assets over the period; see Appendix A in the supplemental data online) hosted the headquarters of firms managing a total of US\$22 trillion, which accounted for three-quarters of the assets managed by US-based managers in 2012. The ascendance of New York is most spectacular. Between 2006 and 2012, New York-based managers have increased their assets by 77%. In 2012, New York hosted 46% of the assets managed by private sector institutions in the United States. In the Western region we also find two major AMCs, namely San Francisco and Los Angeles. The Midwestern and the Southern regions, on the other hand, feature comparatively insignificant AMCs. This uneven spatial distribution poses significant locational challenges to equally unevenly distributed state and local plans.

The median ICR for the 31 plans is 33%, a figure which has remained fairly stable over the whole period (2006–12). Importantly, this suggests that frontier finance amongst public pension plans predates the 2008–09 financial crisis and is actually quite significant – two findings that somewhat contrast with Dixon and Monk's (2014) account. However, the large standard deviation of 25% indicates that there are significant differences between individual plans' in- and outsourcing strategies. Interestingly, exception made for a handful of plans in New York and New Jersey, the plans with the largest average internal capabilities over the period tend to be fairly distant from major AMCs. For example, South Dakota and Colorado manage on average 61% of their assets internally, while Wisconsin, Florida and Ohio follow with ICRs exceeding 40%. These individual cases suggest that physical distance from private sector asset managers does not prevent plans from bypassing contractors. Conversely, The New York City Retirement System, the Illinois Municipal Retirement Fund and the Teachers Retirement System of the State of

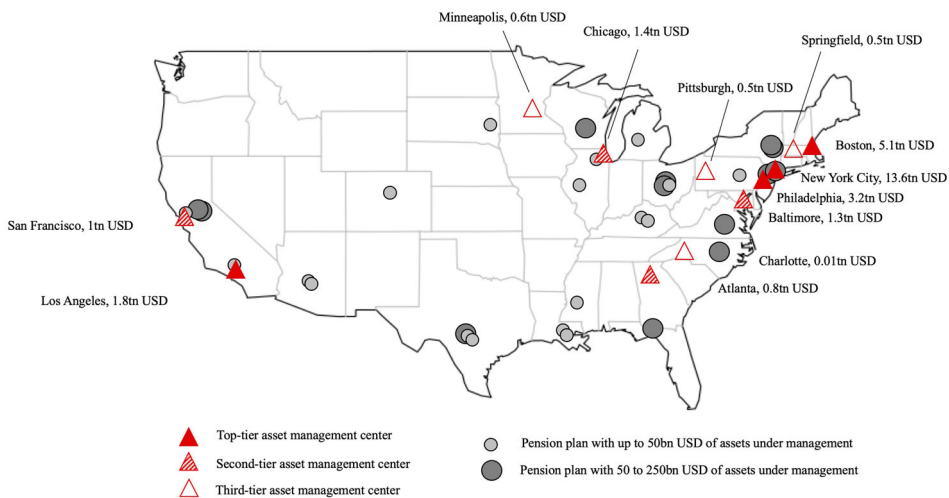


Figure 2. Size and location of 12 asset management centres (AMCs) and 31 state and local pension plans, 2012.

Source: Author's design and calculations on data from the P&I proprietary database and Willis Towers Watson.

Illinois, all three co-located with major AMCs (New York and Chicago), have consistently managed less than 10% of their assets internally over the period.

To probe this geographical relationship more systematically, I use a panel regression model to assess the effect of AMCs' centripetal force on plans' ICR. I rely on observations across the sample of 31 state and local plans for 2006 and 2012. This brings the number of observations to 62. I use the ICR as a dependant variable. The regressors include: the total membership for plan i in year t to control for economies of scale, the market share of the closest AMC for plan i in year t , and the commuting time to the closest AMC for plan i .⁶ A Hausman test confirms that the random effects model is correctly specified. The variance is clustered at the plan level to correct for the observed heteroscedasticity of the error terms. The model is presented in equation (2). In the results (Table 2), 'Model 1: All AMCs' shows the results using, for each plan, the closest AMC out of the 12 AMCs identified in Figure 2. 'Model 1: Top-tier AMCs' shows the results using, for each plan, the closest AMC out of the four top-tier AMCs (New York, Boston, Philadelphia and Los Angeles).

$$ICR_{it} = \beta_1 (\ln \text{Total membership})_{it} + \beta_2 (\text{AMC mkt share})_{it} + \beta_3 (\text{AMC commuting time})_i + \alpha + u_{it} + \varepsilon_{it} \quad (2)$$

The market share of each AMC as well as commuting times are used to estimate the centripetal force exerted by AMCs. In a modified equation (3), I combine the two latter regressors to generate an adjusted AMC market share calculated by dividing AMC market shares (closest to plan i in year t) by 1 plus the commuting time in hours necessary to reach it from plan i :

$$ICR_{it} = \beta_1 (\ln \text{Total membership})_{it} + \beta_2 \frac{\text{Mkt share of closest AMC}_{it}}{1 + (\text{AMC commuting time})_i} + \alpha + u_{it} + \varepsilon_{it} \quad (3)$$

A one-hour commute, therefore, halves an AMC's market share. As such, for a given AMC's market share, the model assumes a convex negative relationship between the centripetal force of an AMC and the time it takes to commute to it. This assumption is of course debatable. One could imagine investors discounting more significantly the inconvenience of a three-hour commute to New York compared with a three-hour commute to a third-tier centre such as Atlanta. There might also be inflexion points corresponding to commuting thresholds (the

Table 2. Results of random effects regression.

Variables: internal capabilities ratio (ICR)	Model 1: All AMCs	Model 1: Top-tier AMCs	Model 2: All AMCs	Model 2: Top-tier AMCs
<i>Control variable</i>				
1. Log of total membership	0.12***	0.12***	0.12***	0.12***
<i>Centripetal force of the AMC</i>				
2. Closest AMC market share	0.01	-0.23*	.	.
3. Commuting time to the closest AMC	0	0	.	.
2'. Commute adjusted closest AMC market share	.	.	-0.13	-0.31
R^2	0.19	0.21	0.18	0.19

Notes: AMC, asset management centre.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$ (two-tailed).

Source: Author's calculations on data from the P&I proprietary database and Willis Towers Watson.

need for overnight stays, or time zone differences). On the other hand, the model has the merit of simplicity and avoids over-manipulating the data. In the results table, 'Model 2: All AMCs' uses the closest AMC out of the 12 AMCs identified in Figure 2 and 'Model 2: Top-tier AMCs' is focused on the four top-tier AMCs. The results are presented in Table 2.

The results confirm the presence of economies of scale. The coefficient, however, is modest. Both models predict a 0.12% increase in ICR for every 1% increase in plan size.⁷ With regards to the centripetal forces exerted by AMCs, only 'Model 1: Top-tier AMCs' yields statistically significant results for AMCs market shares. Specifically, the model predicts a decrease of 0.23% in ICR for every 1% increase in the market share of the most proximate top-tier AMC. Commuting time on the other hand is statistically insignificant (model 1) and returned coefficients close to zero. In model 2, commuting time-adjusted market shares are not statistically significant. One might note that the coefficients are negative in both versions of model 2. Interaction terms between the explanatory variables are not statistically significant in both models.

Overall, the results call to nuance Dixon and Monk's findings on the agglomerative forces exerted by financial centres and strengthens their theoretical proposition. In particular, they suggest a negative relationship between pension plans' internal management and their proximity to top-tier AMCs. In other words, pension plans are more likely to outsource as they find themselves in relative proximity of a leading financial agglomeration. Conversely, the model predicts that physical distance from leading financial agglomerations is associated with higher levels of insourcing. One should note that this analysis is preliminary and would require a larger sample to more robustly probe the relationships teased out here.

RESCALING OF STATE AND LOCAL PLANS' ASSET MANAGEMENT

In order to assess further the direction of rescaling and the role of economies of scale in public plans' response to the make-or-buy dilemma, I divide the sample of 31 state and local plans by assets under management into four categories. Figure 3 shows that institutions with over US \$50 billion of assets (right-hand side) have on average embraced a *hybrid* model that splits the allocation of their assets fairly equally between internal and external management; within that group, ICRs range between 40% and 60%. Mid-size institutions (bottom-part – US\$20–100 billion) have kept a fairly stable mix of in- and outsourcing over the period. On the other hand, smaller plans (less than US\$20 billion) and larger ones (over US\$100 billion) exhibited a much clearer downward trend in ICR over the period.

Note the relative unresponsiveness of mid-range institutions to the unprecedented financial market debacle that unfolded in 2008–09. The institutions managing US\$20–50 billion have consistently managed close to 30% of their assets internally while the ones worth US\$50–100 billion managed on average close to 60% of their assets internally. The inertia amongst mid-sized institutions could be caused by path dependency (Martin, 2000; North, 1991). One potential cause could be the long-term commitments required by external contractors. According to Collins (2003) long investments in equities and fixed income products offer the most flexibility for investors in committing and redeeming funds. On the other hand, investments in hedge funds, private equity and real estate come with significant constraints such as minimum investments, single investor caps and lock-in periods. Inertia is more likely amongst larger institutions because larger institutions tend typically to have more significant exposures to these more complex and illiquid asset classes (MacIntosh & Scheibelhut, 2012). Equally, because these asset classes are more intensive in terms of human and technological capital (and as such require larger infrastructural and payroll commitments), they are typically harder to transfer from an insourced to an outsourced model of investment management.

Interestingly, the smallest and largest players exhibit a downward trend in internal capabilities over the period 2006–12 (see the top half of Figure 3). The decline for the largest players could be

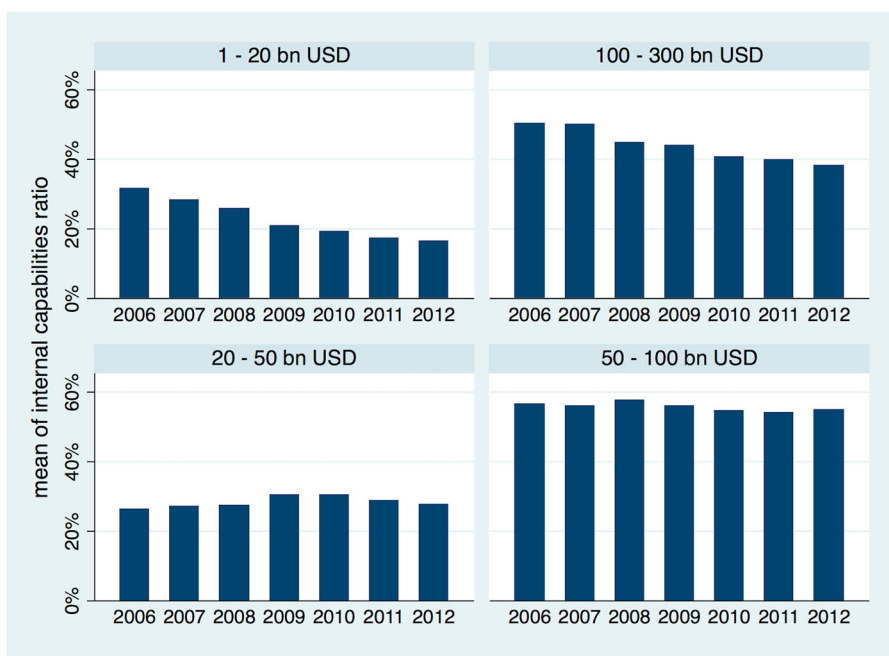


Figure 3. Internal capabilities ratio (ICR) by total assets under management as of 2012, for 2006–12. Source: Author's calculations on data from the P&I proprietary database.

explained by the significant drop in passive investment fees over the two last decades. Indeed, in the 1980s, thwarted by the failures of active management, some of the largest funds in the country built significant passive investment strategies to undercut stock-pickers in Wall Street. Bernstein (1991, p. 163) recalls:

CalPERS invests some \$20 billion in stocks with one manager and two part time traders. The traders sit in a room no bigger than a kitchen. ... The army of security analysts researching individual stocks has disappeared, because the System holds a convenient replica of the market portfolio. The external managers earning handsome fees have lost the System as a client, because their decisions would be redundant. ... The System frequently trades electronically with other large investors, bypassing Wall Street altogether.

However, with passive fees dropping close to zero, large funds such as CalPERS might have started to reallocate their internal passive investments to the 'Big Three'.

As the 2008–09 crisis unfolded, smaller players have also consistently decreased the proportion of insourced assets, from 30% in 2006 down to 17% in 2012. Here the trend might be less strategic than borne out of necessity. Smaller institutions are indeed a lot more sensitive to fixed costs and exhibit large economies of scale for small increments in assets under management (Collins, 2003). The inverse effect holds true when their asset base decreases over time. The 2008–09 collapse of global financial markets likely forced smaller institutions to outsource investment management as their asset base fell below a breakeven point making the fixed costs of internal management unbearable. In particular, smaller plans might have switched some of their insourced assets for externally managed low-cost passive investment funds.

Although there is an aggregate downward trend in insourcing over the period, it is worth stressing that public plans embraced a wide variety of models to manage their assets (the panel's standard deviation for ICR is 25%). In- and outsourcing arrangements appear to have been only mildly

Table 3. Typology of state and local plans' internal capabilities management, 2012.

	Static	Dynamic
Insourced	2	0
Hybrid	9	8
Outsourced	9	3

Source: Author's calculations on data from the P&I proprietary database.

affected by the 2008–09 crisis. An interesting sub-pattern that emerges is a conversion towards a *hybrid* model combining in- and outsourcing. Notable examples include the New Jersey Division of Investment, the South Dakota Investment Council and the Teachers Retirement System of Texas. Indeed, all were largely insourced back in 2006 (over 75% of assets managed internally) yet went through a significant 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 outsourced institutions back in 2006, have increased their ICR towards a similar balanced *hybrid* model. These observations are stylized in Table 3, which classifies the 31 observed state and local plans according to their model of in- versus outsourcing and their institutional responsiveness.

To summarize, the institutions exhibiting a clear upward or downward trend in internal capabilities over the period are categorized as *dynamic*. They form the group supporting the hypothesis of an institutional rescaling of public pension management. This group includes a third of the sample. While none have rescaled their operations towards an *insourced* model (above 60%), the majority have made a strategic move towards further institutional hybridity (50%–50% 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 no change in their models of internal capabilities over the period.

Only two institutions have consistently maintained an *insourced* model, while the 18 other *static* institutions are evenly split between *hybrid* and *outsourced* models. The prevalence of *hybrid* and *outsourced* institutions and the downward trend in ICRs shows that while some public plans had been engaging with internal management in meaningful ways before the crisis, the event did not push plans to insource their investment functions. The dominance of the *static* model concurs with Clark and Monk's (2014) recent research on investment management agreements (IMAs) showing that most public plans also face issues of adaptiveness, particularly in a period of accelerated changes in financial markets.

CONCLUSIONS

This research provides a stepping stone to reflect on how public pension investment arrangements are shaped by a juncture of geographical and political particularities and broader developments in financial market investments. As I have argued, public pensions' investment strategies in the United States are underpinned by a plethora of local processes. This argument is sustained in reference to empirical findings that show that not only do state and local pension plans vary in terms of size, funding and governance structure but also they vary considerably in their investment management arrangements (in- versus outsourcing and active versus passive) through time and space. This finding underscores the importance of the variegated political and economic geography of public pension management in the United States.

The econometric analysis on public plans' insourcing strategies sheds a new light on ongoing debates in financial geography. In particular, it offers new empirical insights into Dixon and

Monk's frontier finance thesis. While the results on the evolution of AMC's between 2006 and 2012 show increasing geographical concentration in the private sector, the results on ICRs suggest that state and local plans do bypass private contractors in AMC's in more significant ways than previously suggested – one-third of the US\$1.78 trillion of assets managed by the 31 plans surveyed here were managed internally in 2012.

The longitudinal analysis suggests that there is no clear pattern of rescaling in the direction hypothesized (insourcing). Interestingly, insourcing predates the 2008–09 financial crisis – 38% of the assets of the 31 surveyed plans were managed internally in 2006. While overall state and local plans are not running away from Wall Street, a form of institutional rescaling has started to take place. This has predominantly taken the shape of a rebalancing between in- and outsourcing towards a 50%–50% model. This increasing 'institutional hybridity' concurs with Lee, Clark, Pollard, and Leyshon's (2009) reading of post-crisis processes of financialization.

The econometrics and descriptive statistics offer new insights on economies of scale and co-location. In particular, the results call for a more nuanced treatment of economies of scale in public pension management. Although authors have not yet ventured to determine a clear size threshold, the consensus has so far been that larger assets equate larger ICRs (Clark & Monk, 2013b; Collins, 2003; Dixon & Monk, 2014). While the findings presented here confirm the general character of this assertion, a handful of counter-examples show that smaller (and *distant*) plans can in fact find ways to insource. Most striking examples include the Louisiana State Employees' Retirement System and the South Dakota Investment Council, both managing less than US\$10 billion of pension assets, who respectively managed 30% and 64% of their assets internally in 2012.

The results on the relationship between plans' proximity to AMC's and their capacity to insource call for a more nuanced understanding of AMC's centripetal forces. Indeed, they show that distant institutions are more likely to insource their investment management functions. While the results from the econometric analysis are preliminary, they invite social scientists interested in placing finance in space to dig deeper into the seemingly paradoxical phenomena of increasing agglomeration of financial institutions and the accelerating virtualization of their tasks and functions. The rise of passive investment funds sits at the heart of this emerging new geography of financial market investments: spatially extensive yet resolutely agglomerated. As such, new conceptualizations are much needed. The Global Financial Networks framework proposed by Coe et al. (2014) and refined by Haberly et al. (2018) offers interesting research avenues in this respect.

To conclude with the case in point, state and local plans are hard pressed to adapt and make the most of these developments. Indeed, the persistently high management fees paid by state and local plans suggest that there is still a lot of room for improvement. In particular, integrating insourcing in the form of concentrated portfolios of direct investments in long-term projects in private markets – as suggested by Dixon and Monk (2014) as well as Monk et al. (2017) – in conjunction with outsourced low-cost passive investments provides an interesting way forward, one that leverages private sector innovation as well as pension funds' large financial resources, their long-term time horizons and their unique geography.

Unfortunately, the chase for short-term fixes to pension underfunding is likely to keep plans running after short-term outperformance in outsourced active management. Here, one should hope for improvements in regulatory standards and governance so that investments decisions are more closely linked to the long-term funding imperatives of public pensions and taxpayers' interests. Political will is to play a crucial role in that respect. Overall, there is still much work to be done to improve the performance and efficiency of public pensions systems in the United States. Whilst minimizing expenses and improving investment returns still holds untapped potential, it will take significant top-down political reforms to see the strategy deliver on its promises. Indeed, many state and local governments are trapped in a conjunction of public debt and pension underfunding. Within the current framework, addressing this twin deficit would be so politically

costly that incumbent administrations are likely to keep kicking the can down the road. Yet, as the case of Illinois illustrates, it is not only an ineffective and irresponsible pension management tactic but also one that could well precipitate the bankruptcy of state and local governments.

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NOTES

1. State and local government employment is calculated using data drawn from the Bureau of Labor Statistics website at www.bls.gov.
2. An exception is made for securities lending services offered by some large pension funds.
3. There is a real possibility that market inefficiencies will increase as passive investments grow as a proportion of total capital market investments. The scenario would create room for a resurgence of active management (cf. Haberly & Wójcik, 2017; and Haberly et al., 2018).
4. This concerns all plans that missed reporting assets managed internally either at the beginning or at the end of the observed period and those which missed more than one year of reporting.
5. The US Census Bureau recorded US\$3.05 trillion for the same year for the entire population of the US state and local plans.
6. Commuting times are calculated in minutes using Google Maps and Google Flights to estimate the shortest commuting time between a pension plan headquarters and an AMC. Flights include airport commutes, waiting time and stopovers when necessary.
7. Total membership is used as a proxy for assets under management because assets under management is used as the denominator of the dependent variable.

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