Liability-driven investment and pension fund exposure to emerging markets: A Minskyan analysis

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Abstract
This paper explores the determinants and implications of the growing allocation of insurance companies and pension funds to emerging markets. The key contention put forward is that liabilities are at the core of the portfolio choice of insurance companies and pension funds, and that this has important consequences for the stability of asset demand. The paper supports this contention with a theoretical framework based on Hyman Minsky and the results from 22 semi-structured interviews with European insurance companies and pension funds’ executives, investment consultants, and asset managers. It shows that the rising insurance companies and pension funds’ demand for emerging markets’ assets has to be analysed in the context of the pressures resulting from structural funding deficits and low yields. Emerging markets’ assets are sought as part of the sector’s strategy to increase returns and, given their subordinate integration into a spatially uneven international monetary and financial system, remain not suited to directly meet insurance companies and pension funds’ liabilities. This causes insurance companies and pension funds’ demand for these assets to be volatile and independent of conditions in these countries, reproducing emerging markets’ monetary and financial subordination. By stressing the structural financial (in)stability implications insurance companies and pension funds’ liabilities have for emerging markets’ asset demand, the paper contributes to the literature on insurance companies and pension funds’ investments in emerging markets and bridges the gap between those which have noted the importance of liability conditions for insurance companies and pension funds and the literature pointing to the destabilising impact of insurance companies and pension funds due to behavioural and agency issues. Moreover, by basing itself on a Minskyan theoretical framework, it responds to recent calls for a more systematic incorporation of heterodox economic thought into financial geography.
Introduction

The increased investment of insurance companies and pension funds (henceforth ICPFs) from advanced economies (AEs) into emerging markets (EMs) has been one of the most salient changes in international finance over recent years (IMF, 2014; Moore et al., 2016). As of 2016, ICPFs owned about 54 trillions of US dollars, about 70% of global Gross Domestic Product, or 32% of total world bonds and stocks outstanding, with a growing proportion being invested in EM assets. While this proportion is still small within ICPF portfolios, it is sizeable for EMs, which has sparked the attention of a growing literature discussing the implications it might have for financial stability. Whereas some see it as a positive development, as ICPFs help to modernise and stabilise financial markets (Clark, 2005; Clark and Hebb, 2005; Hardie, 2007; Hebb and Wójcik, 2005), others have shown that this might not always be the case due to the existence of herding, benchmark trading, and the large size of these investors relative to EM domestic markets (Arslanalp and Tsuda, 2015; IMF, 2014; Langley, 2004; Liang, 2011). Indeed, the IMF (2014, 2015) has shown in its Global Financial Stability Reports that ICPFs may be less sensitive to short-term volatility, but respond sharply to financial shocks.

We contribute to this literature by highlighting a so far neglected determinant of ICPF behaviour: their liability structure and the need to ‘match’ this liability structure with their asset allocations, that is ICPFs need to ensure that the assets they hold generate a cash flow which is both high enough and similar in its dynamics to their existing liability structure to be able to service current and future cash commitments. Based on a Minskyan theoretical framework, we make two key arguments: first, ICPF investments in EMs have been fundamentally shaped by recent changes in their liability structures in the form of structural funding deficits; second, because EM assets are not fit for matching ICPF liabilities they are sought as part of a ‘return-seeking’ investment strategy, that is high-risk/high-return assets kept for portfolio growth purposes, which has negative implications for the stability of ICPF asset demand. Whereas the existing literature has largely focused on behavioural and agency issues, such as herding and benchmark trading (IMF, 2014, 2015), we highlight how internal structural problems of ICPFs may destabilise financial markets in EMs.

By highlighting the structural implications ICPF balance sheet structures have for financial (in)stability, and drawing its analysis on a Minskyan theoretical framework, the paper makes several contributions to the literature on ICPFs, pension fund capitalism, and financial geography more generally.

First, it bridges those contributions in the pension fund capitalism literature which have highlighted the role of liability mismatches and funding gaps in the evolving ICPF governance (Clark and Monk, 2006; Clark and Urwin, 2008; Monk, 2009), with those that have pointed to the financial stability implications of the rise of ICPFs (Blackburn, 1999; Engelen, 2003; Langley, 2004; Whalen, 2001). Based on 22 in-depth semi-structured interviews with European ICPF executives, managers, investment consultants, and asset managers, it shows the systematic and systemic role liability-driven investment (LDI) nowadays plays for ICPF portfolio decisions. The central contention is that in the era of LDI, ICPF asset demand becomes to fundamentally depend on the conditions of their liabilities and the contribution that these assets make in meeting them. This, in turn, has important
consequences for the nature of ICPF demand for different asset classes and hence financial stability.

Second, by highlighting the need of ICPFs to match their liabilities, the paper reaffirms the importance of space and place in shaping cross-border capital flows (Christophers et al., 2017; Clark, 2005; Corbridge et al., 1994; Dymski, 1999; French et al., 2011; Leyshon and Thrift, 1997). Whereas financial flows have become increasingly fluid and seemingly oblivious of geographical borders, the liabilities which ICPFs need to meet are deeply embedded in specific geographies and the institutional, regulatory, and macroeconomic (henceforth IRM) characteristics circumscribed by them. This is particularly the case for ICPF liabilities which are constituted by the insurance and pension promises to a nation’s citizens. While strongly tied to specific locations, in the era of financialisation and privatised pension systems more and more individuals have been drawn in the remit of private financial markets. In this vein, Bryan et al. (2017) argue that

... we can start to see the reconstruction of a nationality in finance not in term of the axiomatic innate nationality of capital or financial institutions, but in the development of a financialized citizenry, which anchors the nationally dominated financial claims circulating globally. (59)

Third, the paper’s emphasis on the ‘homogenising’ and destabilising impact of ICPF stemming from their liability structure points to another channel through which the structural imperialism of modern finance exercises itself (Gowan, 1999; Harvey, 2003; Meeteren and Bassens, 2016; Panitch and Gindin, 2009) and reproduces the uneven development of today’s financial capitalism (Bond, 1998; Corbridge et al., 1994; Harvey, 2006; Leyshon and Thrift, 1997; Pike and Pollard, 2010; Sokol, 2017). Financial geographers have long pointed at the uneven geographical distribution of global financial activities which tend to concentrate in AEs and there particularly in financial centres, such as New York and London (Clark, 2002; Clark and Monk, 2017; Wójcik, 2013). This is also the case for the liabilities of ICPFs which collect the savings of AE workers and frequently outsource them for management to asset management companies (most of them located in the financial centres mentioned above) (Clark, 2005; Clark and Monk, 2017).

This has two implications for our argument. First, financial conditions in AEs (and the financial centres herein) will fundamentally shape asset demand in other places, largely independent of the specific conditions in these localities. Though this is particularly evident during crisis episodes, this paper shows that ICPF demand for an entire asset class, EMs, can be understood as a result of their changing liability conditions. Second, though a far more complex channel, the need to match these AE ICPF liabilities puts pressures on the assets ‘produced’ elsewhere to mirror the characteristics of these liabilities (Bassens, 2012; Gowan, 1999; Hebb and Wójcik, 2005). Failure to do so will be priced as additional ‘risk’, reflected in the need to generate higher cash flows, or can lead to the exclusion from the ICPF investable set.2

Whereas these risks are inherent to cross-border capital flows, this paper argues that EM assets are particularly unsuited for matching AE ICPF liabilities. This is due to their historically very distinct IRM conditions. More importantly though for our purposes, it is the immediate result of EMs’ subordinate position in the spatially uneven international financial and monetary system, which exposes them to relatively lower market liquidity, higher credit and currency risk, and heightened financial volatility and external vulnerability; all of which makes their assets not well suited for liability matching. This, in line with the Minskyan framework put forward, necessitates them to offer higher cash flows and means they are only bought for return-seeking purposes. More than that, the instabilities created by being
part of this return-seeking portfolio reproduce EMs' subordinate international financial and monetary position (Gowan, 1999) and the uneven geographic development it entails (Kaltenbrunner and Painceira, 2018).

Finally, by basing our analysis on a Minskyan theoretical framework we respond to Dymski’s (2017, 2018) recent call for a more systematic analysis of financial instability using Minsky’s work outside heterodox economics, in particular economic geography. In his work, Minsky (1975, 1986) highlighted the crucial role of liability conditions for economic actors’ portfolio decisions and the implications the dynamic mismatch between the two has for the stability of financial capitalism. Moreover, Minsky’s emphasis on which assets are bought and how they have been financed represents an inherently relational view of finance, which highlights the importance of both time and space for understanding financial decision making and helps to theorise the ‘spatial relations of finance’ (Barnes and Christophers, 2018). These encompass not only the instability arising from ‘mismatches’ between two places, but also the power one place, predominantly the one where ‘financing’ occurs and hence liabilities are concentrated, can have over another.3

The paper is structured as follows. The next section reviews the literature on pension fund capitalism, with a particular emphasis on the role of liability management and its implications for financial stability. The ‘LDI and ICPF behaviour from a Minskyan perspective’ section discusses the nature and implications of LDI within a Minskyan framework. The ‘LDI and ICPF investment in EMs’ section shows the importance of LDI for recent changes in ICPF behaviour towards EMs, whereas the ‘LDI and financial stability in EMs’ section discusses the implications of these changes within the uneven geography of international monetary and financial relations. The final section concludes.

Pension fund capitalism and EMs

The rise of ICPFs as shareholders and key economic agents represents a crucial structural shift in Western capitalism (variously termed ‘grey’/pension fund/money manager capitalism) (Blackburn, 1999; Clark, 2000; Toporowski, 2000; Whalen, 2001). For some, this shift represents a beneficial development as ICPFs compensate for the falling financial capacity of nation states in the face of changing demographics and promote efficient corporate governance (Clark, 2000, 2001, 2003; Clark and Hebb, 2005). As part of this process, ICPFs are also expected to invest in EMs, which is considered necessary to solve Western countries’ retirement crises through the generation of higher returns (Clark, 2001; Clark and Monk, 2017). From the perspective of the recipient countries, the international diversification of ICPFs is seen to contribute to the transfer of savings, better governance standards, and spread of economic and financial development (Clark, 2005; Clark and Hebb, 2005; Hebb and Wójcik, 2005). Moreover, the higher share of long-term investors in international capital flows should act stabilising due to their longer time horizon, making them more considerate of domestic economic fundamentals and less sensitive to international market conditions (Hardie, 2007).

Others have been more sceptical of the alleged benefits of ICPFs which are seen to promote speculative behaviour and herding which destabilise the financial system and generate boom–bust cycles (Engelen, 2003; Langley, 2004; Toporowski, 2000). Moreover, ICPFs are thought to advance ‘shareholder value’, which prioritises short-term returns at the expense of long-run productive investment and employment (Blackburn, 1999; Engelen, 2003; Langley, 2008; Minns, 1996; Toporowski, 2000; Whalen, 2001). When it comes to investing in EMs, ICPFs are seen to impose constraints, particularly through their holding of EM public debts, ‘with knock-on effects for national exchange rate and interest rate
policies’ (Minns, 1996: 48). The standardisation of policies across the globe that is promoted through ICPF investment is seen as a negative and politicised strategy that only contributes to reinforcing the neoliberal agenda (Soederberg, 2003). With regard to the stability of international capital flows, this literature, in line with the general argument above, points to the risk of exacerbated price movements and boom–bust cycles due to the presence of herding, benchmark following, positive feedback trading, and contagion (Arslanalp and Tsuda, 2015; Langley, 2004; Liang, 2011; Toporowski, 2000).

Although this latter literature has pointed to the potentially destabilising implications of ICPF investment in EMs, its focus has been on the behavioural and agency issues that may result in unstable investment decisions, rather than the structural conditions underlying ICPF portfolio decisions. It misses the crucial importance of liabilities in this process. For example, Engelen (2003: 1364) argues that ‘pension funds have four objectives, that is, (1) the minimisation of risks, (2) the maximisation of returns, (3) ensuring liquidity, and (4) the minimisation of costs’. However, he does not appreciate the importance of the structure and size of liabilities in shaping these four parameters.

The importance of liabilities for ICPF portfolio decisions has first been acknowledged in the early 2000s (Clark, 2003; Clark and Monk, 2006, 2007). At the turn of the century, with the collapse of the ‘dot.com’ bubble and the subsequent expansionary monetary policy, equity prices and bond yields declined dramatically. ICPFs were hit heavily by a sudden fall in asset values, given their large equity investments, and a reduction of long-term returns and interest rates, a combination defined as a ‘perfect storm’ for ICPFs. As a result, for the first time in history, ICPFs saw the value of their assets fall below the value of their liabilities, which created a funding deficit and put the sustainability of pension and insurance entitlements into question.

Some authors located these problems in inadequate governance mechanisms, which meant that trustees were not fully aware of the financial risks associated with their investment strategies (Monk, 2009). The inherited governance structure of ICPFs was deemed to be inadequate to face the reality of globalised capitalism, dominated by complex financial investments (Clark and Monk, 2006). One element of this lack of ICPF oversight was the failure to properly account for their changing liabilities, in particular, with regard to the appropriate use of discount rates to calculate their value as the discounted future cash obligations (Clark and Monk, 2006). However, while acknowledging the crucial role ICPF liability structure had in contributing to the ‘perfect storm’, this literature has not investigated further the systematic (and systemic) implications that liabilities nowadays have for ICPF asset allocation strategies and consequently financial stability. This paper fills this gap by bridging the literature focussing on the importance of liabilities, with that on the financial stability implications of ICPF investment. This, as we show in the next sections, follows naturally in a Minskyan framework.

LDI and ICPF behaviour from a Minskyan perspective

Hurt by the substantial funding deficits during the ‘perfect storm’, ICPFs now put liabilities explicitly at the core of their operations. As highlighted by Franzen (2010):

‘In the traditional world, investment was mainly an exercise in optimising risk-adjusted returns conducted by the pension fund manager with often a rather loose view on liabilities’ (26).

Nowadays, according to the BIS (2011), the central concern for institutional investors is not the performance against benchmarks or peers,
‘but rather how assets perform against the size and time profile of liabilities’ (10–11).

Similarly, an asset manager of a pension fund fiduciary company noted:

‘[liabilities] are very important because that’s almost like a benchmark you need to beat’ (Interviewee 10, 5 February 2015).

This overarching investment framework has come to be known as LDI. The liabilities of ICPF s are calculated as the present value of future cash commitments, i.e. pensions and insurance bonuses, which are discounted with interest rates on high-quality assets such as low-risk bonds or interest rate swaps. This implies that, unlike other institutions such as banks, ICPF s have a long-term, fairly predictable liability structure. Ideally, ICPF s would insure themselves fully by investing in assets whose cash inflows precisely match these outflows. However, as these assets may not be readily available or affordable, ICPF s face the dilemma of choosing between assets with secure and predictable but low cash inflows, and assets with uncertain but potentially high cash inflows. Under LDI, the solution to this dilemma is based on a clear distinction between two portfolios: a liability-matching (or protection) and a return-seeking (or growth) portfolio.

‘In this structure, the hedging objective and the return goal are managed by (a) how much of the total portfolio is dedicated to each portfolio and (b) the way in which the two portfolios are structured’ (Collie and Osborn, 2011: 2–3).

As both a pension fund investment adviser and pension fiduciary company manager pointed out:

So, pension schemes typically split their portfolios into two parts: they got the … growth part, … and then the other part of the portfolio would be in more traditional government bonds, or potentially investment-rate corporate bonds. (Interviewee 5, 22 January 2015)

our clients they do have a liability-matching or hedging portfolio … to get some of that interest rate sensitivity of their liabilities. But next to that we have a return-seeking portfolio and that is a very diverse portfolio … which should deliver returns to give an attractive proposition to pension funds to earn enough returns to achieve their long-term liability goals. (Interviewee 2, 16 January 2015)

Minsky’s liability view of portfolio decisions offers a helpful analytical framework to theorise this new way of operating by ICPF s. In John Maynard Keynes, Minsky (1975) puts forward a reinterpretation of Keynes’ liquidity and portfolio demand theory of the ‘own rate of interest’. In the original Keynesian formulation, such a theory states that an asset is valued on the basis of its predicted return (q), minus its carrying costs (c), and a liquidity premium (l), that is its ability to work as a store of value and means of payment in the presence of fundamental uncertainty (Keynes, 1936). Minsky depicts a modern monetary economy in terms of balance sheets and cash flows:

In a capitalist economy, one way every economic unit can be characterized is by its portfolio: the set of tangible and financial assets it owns, and the financial liabilities on which it owes … Both assets and liabilities … set up cash receipts or expenditures over some fixed or variable future time period. (p. 70)
In such a monetary economy, the theory of the ‘own rate of interest’ acquires a particular balance sheet interpretation. The returns are cash inflows from the asset side of a balance sheet, the costs of holding such assets are the cash commitments from its liabilities, and the liquidity premium is the implicit yield that assets owe to their ease of disposal at no or little loss to be used to settle current and future obligations.

Thus, in this Minskyan view, the demand for an asset will be determined by the extent and nature of the cash flow it generates relative to the investor’s liabilities and the ability to convert the asset at no loss into the unit in which her liabilities are denominated. Deviations of an asset from a given liability structure and/or difficulties to sell it have to be compensated with higher expected cash flows. In this view, liquidity preference encompasses the whole balance sheet choice between capital/non-liquid financial assets and liquid assets on the asset side, and the choice of borrowing on the liability side. Ceteris paribus, a more liquid asset, that is an asset that is more able to meet an agent’s current and future obligations, will always be preferred.

This balance sheet view of portfolio decisions can well account for current ICPF LDI practice. First, it is in relationship to liabilities that all financial assets bought by ICPFs are defined. As illustrated in Figure 1, financial assets are evaluated along a spectrum representing their ability to produce cash flows that mimic the obligations of ICPF liabilities and/or their sensitivity to factors that affect their valuation (e.g. discount rates, longevity, or inflation).

At one end of the spectrum, AE government bonds are best suited to match ICPF liabilities, as they offer a predictable series of cash flows and their valuation responds to changes in interest rates the same way as the value of ICPF liabilities does.

As pointed out by a European pension fiduciary company manager:

‘because all the pension liabilities are in euros and rather long-term, the liability-matching ... portfolio basically uses interest rates swaps plus European government bonds’ (Interviewee 2, 16 January 2015).

For the benefit of having their liabilities well matched, and thus a stable funding level, ICPFs are prepared to sacrifice higher returns.

At the other end of the spectrum lie assets that are less suitable to match liabilities (e.g. through an uncorrelated cash flow) and are therefore allocated to the return-seeking portfolio. These assets will only be demanded insofar as their lower capability to match liabilities

\[ \text{Equity} \rightarrow \text{Real Estate, Infrastructure} \rightarrow \text{Highly-rated corporate Bonds} \rightarrow \text{Advanced countries gov. bonds} \]

\[ \text{Ability to match liabilities} \]

\[ \text{Return-Seeking} \rightarrow \text{Liability-matching} \]

**Figure 1.** LDI asset continuum. EM: emerging market.
Source: Own elaboration.
is compensated by higher expected cash flows. This, for example, is the case for equities, whose cash flows (dividend payments) are uncertain by definition and hence cannot be used to match the regular liabilities of ICPFs. Furthermore, their value is subject to frequent readjustments, which depend on a greater range of factors than those affecting the valuation of ICPF liabilities.

Given the risk associated with equities, ICPFs have started to include other assets into their return-seeking portfolio, including hedge funds, private equity, infrastructure, commodities, high-yield debt, real estate, and indeed EMs. Importantly, while these assets, according to the LDI framework, are allocated to the return-seeking portfolio, they might still differ according to their ability to match ICPF liabilities. For example, infrastructure can produce a relatively stable pattern of cash flows that can be used to match cash obligations, even if still falling short of the criteria to be considered a liability-matching asset. Thus, whereas conceptually the ability to match liabilities is one of degree and moves along a continuous spectrum, in practice, under LDI, ICPFs need to make a dichotomous choice about which assets to allocate to which portfolio.

The second way Minsky can help us to theorise ICPF behaviour is that the condition of their liabilities will itself affect their liquidity preference, manifested in the relative allocation towards liability-matching and high-return assets (when liquidity preference is high/low, matching/risky assets will be favoured). The ultimate goal of ICPFs is to meet their liabilities. Their liquidity preference is a consequence of how to best achieve such a goal: in conditions where their assets fully cover their liabilities, liquidity preference increases in order to safely match future cash outflows; where deficits arise, the pressure to generate returns dominates, decreasing liquidity preference. This imposes an institutionally driven liquidity preference behaviour on ICPFs. Funding deficits imply a situation whereby current assets are insufficient to meet future liabilities. This means ICPFs have to allocate a higher share of their portfolio to riskier assets in order to generate the necessary cash flow.

If you are underfunded then you need to close that funding deficit, ... and you need your investments to do more work, and that means investing in things that have a higher expected return ... If you get better funded, growth is less of an issue ... for the schemes that get very well-funded there is very little incentive to take investment risk, so they tend to de-risk. (Interviewee 5, 22 January 2015)

This Minskian view adds to the literature’s traditional arguments about governance and financial stability discussed in the ‘Pension fund capitalism and EMs’ section. Rather than simply the product of pure short-termism and herding, ICPF demand for risky assets is determined by their structural need to generate sufficient returns to meet growing liabilities in the face of changing demographics and falling returns on the main liability-matching assets such as bonds. Through this mechanism, the centrality of liabilities becomes a binding constraint on ICPF investments: it is not so much that ‘trustees prefer alternative assets to bonds in their quest to match assets with liabilities’ (Monk, 2009: 874) but rather that they currently need these assets to enhance their cash flows.

Finally, our Minskian framework points to the fundamental implications such a liability-focused investment practice has for financial (in)stability. The degree to which assets can match ICPF liabilities matters for the stability of demand. As Hardie (2007) shows, ICPF liability-matching strategies are likely to create a degree of ‘loyalty’ towards domestic government bond holdings. On the other hand, given the large set of investment alternatives, return-seeking strategies are likely to be less stable and prone to the instability that critics of
pension fund capitalism put forward. Moreover, as said, asset demand might change as a result of changes in the relative demand for liability-matching and return-seeking assets rather than in the assets themselves.

This instability can be exacerbated by external asset managers which become crucial for a successful LDI strategy given the need for portfolio reallocation (both within and between the return-seeking and liability-matching portfolio) and the increased diversity and complexity of the assets included in the return-seeking portfolio. From a Minskyan perspective, asset managers increase the liquidity of these assets for ICPFs, which can more easily change the composition of their investments through them. This can, however, make the demand for individual asset classes more volatile, as ICPFs rearrange their investments in line with their LDI needs. Furthermore, asset managers may themselves add to this instability as they frequently rebalance their portfolio, in order to meet return targets and attract and maintain ICPF clients. This may induce destabilising behaviours such as ‘reaching for yield’ and herding, which may generate competitive short-term returns but aggravates systemic risk (Clark and Monk, 2017).

The enormous size and homogenous behaviour of ICPFs might also contribute to boom dynamics in those asset classes which periodically appear to offer the best returns with some ability to match their liabilities, but boast relatively thin markets and limited supply. Indeed ICPFs have been central to the long boom in equity prices (Toporowski, 2000), the rise and fall in asset-backed securities and commodities (Lysandrou and Nesvetailova, 2015; Wray, 2008), real estate (Fernandez and Aalbers, 2016), and most recently in the rise of ‘alternatives’, such as hedge funds and private equity (Bonizzi and Churchill, 2017; OECD, 2015).

**LDI and ICPF investment in EMs**

This shift to LDI, and the subsequent changes in international financial markets, have had crucial implications for ICPF asset allocation. Figure 2 shows the evolution of US ICPF assets and liabilities over the last 15 years. One can observe the dramatic impact of the ‘perfect storm’ in the beginning of 2000, as falling asset prices and rising liabilities left many ICPFs with a substantial funding deficit. While the bull markets in the 2000s allowed assets to recover more quickly than liabilities, creating a temporary surplus, the 2008 crash reopened these large deficits: stock prices fell again dramatically, further revealing how equities had become a poor match for ICPF liabilities; moreover, falling interest rates reduced the returns ICPFs could generate on their

![Figure 2. US ICPF' Assets and Liabilities.](source: Authors’ elaboration based on Milliman 100 Pension Funding Index. Note: Data are in USD trillions. Pension funding surplus/deficit is in percentage to total assets.)
liability-matching assets while at the same time increasing the value of their liabilities discounted with these rates, thus dynamically widening the gap between assets and liabilities. In addition to generally loose monetary conditions in AEs, the declining trend in interest rates has been the product of a shortage of high-quality assets (Caballero et al., 2017; Fernandez and Aalbers, 2016; Lysandrou, 2011). The causes of this shortage have been multiple: the ‘global standards’, which sought to make the international financial system more stable, have effectively constrained the supply of such assets; austerity and lower public borrowing in AEs have reduced the supply of highly rated government bonds; the growth of new investors, such as Sovereign Wealth Funds and high-net-worth individuals, has added to global asset demand; and finally, quantitative easing, which added central banks as key purchasers of highly rated assets, reduced the stock available for private investors.

In line with the LDI framework set out above, these funding deficits caused a fundamental shift in ICPF asset allocations. ICPFs must keep a large share of their investments in liability-matching assets, i.e. AE government bonds. However, in the environment of low interest rates and funding levels, this type of strategy has become constrained by the need to generate additional returns to grow their portfolios in line with liabilities. While direct holdings of equities have represented the traditional source of returns for ICPFs, they have become less attractive due to the reasons outlined above.

The resulting compromise has been to keep a sizeable liability-matching portfolio, while altering the composition of their return-seeking portfolio. ICPFs have looked for assets that can give them higher expected returns and have diversified across a broader range of return-seeking assets (to reduce the individual asset risks). Both have allowed them to raise returns without the need to increase allocation to return-seeking assets as a whole and thus compromise their funding positions.

Figure 3. ICPF Asset Allocation.
Source: Authors’ calculation based on OECD Institutional Investors Statistics.
Note: Countries included are Belgium Canada Finland Germany Japan Netherlands Norway Sweden United Kingdom and United States. Figures are averages across countries.
As a result, as can be seen in Figure 3, allocation to equities has fallen from over 30% in 1999 to about 15% in 2014. At the same time, the percentage allocated to ‘funds’ (including a range of externally managed return-seeking assets) increased from about 11% to 28%.

It is along these dimensions that ICPF demand for EM assets can be understood. EMs represent one way to raise returns, while (seemingly) not increasing risk exposures excessively. The improvement in macroeconomic fundamentals in many of these countries has made ICPFs less wary about holding EM assets. At the same time, they provide international diversification benefits to the extent that their returns are not perfectly correlated with advanced financial markets. As a pension fund investment adviser explained:

if you got a large deficit and you have a big hole to fill, a big bridge to build, to full funding, then you need to make your assets work harder, and generally may allocate more to growth assets, which would result in higher allocation to EMs. (Interviewee 8, 2 May 2015)

Figure 4. ICPF Emerging Markets holdings.
Source: Authors’ elaboration based on Emerging Portfolio Fund Research (EPFR).
Note: Data is in USD billions. EPFR figures show holdings of equities and bonds through funds, and allows for distinguishing between institutional and retail clients. In this paper, only the former are used.

Figure 5. ICPF proportion of FX turnover. BRL: Brazilian Real; CNY: Chinese Yuan; HKD: Hong Kong Dollar; HUF: Hungarian Forint; INR: Indian Rupee; KRW: Korean Won; MXN: Mexican Peso; PLN: Polish Zloty; RUB: Russian Rouble; TRY: Turkish Lira; TWD: Taiwanese Dollar; ZAR: South African Rand.
Source: Authors’ calculation based on BIS Triannual Foreign Exchange survey.
Figure 4 shows the remarkable growth of ICPFs in EM assets, in particular after the global crisis of 2008. As of September 2013, the exposure amounted to just under one trillion of US dollars. This is roughly equal to 21.5% of total portfolio liabilities of EMs.\(^{10}\)

Holdings of EM assets have not only increased in absolute terms but also as a relative share of ICPF portfolios. An estimation based on the EPFR and OECD data used thus far suggests that just under 2% of ICPF total portfolio is invested in EMs as of the end of 2013, up from 0.17% at the turn of the century. While these allocations appear small in relative terms, they translate into sizeable numbers for EMs. Moreover, these data are likely to underestimate the actual allocations, as EPFR data only take into account assets that are intermediated through funds, thus not accounting for direct asset holdings of ICPFs.

This situation has remained largely unchanged since the global financial crisis. Bond yields remain low and funding deficits large (OECD, 2015), which means the ‘hunt for returns’ by ICPFs continues to be a defining feature of their behaviour (Smith, 2017). Indeed, interest in EMs by ICPFs has kept growing, as shown in Figure 5, which shows the share of institutional investors in several major EM currencies in 2013 and 2016. This is despite repeated macro-financial shocks, such as the tapering of Quantitative Easing policies in 2013 and the commodity price collapse in 2015, which had a negative impact on EM outlooks, but did not fundamentally change the liability-driven pressures that originated the ICPF demand for EM assets.

Reflecting the uneven spatial distribution of ‘global’ financial activities, the majority of these ICPF flows have stemmed from a small group of AEs, with a sufficiently long history of private provision of retirement income. As of 2014, almost 80% of global pension assets were concentrated in three countries: UK, US, and Japan (Bonizzi, 2017b). In line with our Minskyan LDI framework, ICPF demand from different jurisdictions might vary depending on the specific IRM affecting their liability structure. The three dominant AEs remain very similar in their institutional and regulatory environment regarding funding and asset allocations, thus forming a core block of global ICPFs (Pugh and Yermo, 2008). The interviews, however, showed that ICPFs from smaller jurisdictions, for example Scandinavian countries, are subject to tighter rules with regard to the risk taking in their return-seeking strategies which could reduce ICPF flows to EMs should these institutions gain more global importance.

The same holds true for ICPFs from EMs. Although still too small to make a difference globally, these institutions have started to have an impact on domestic financial markets, especially in Latin America. These institutions could potentially act differently from foreign investors in domestic financial markets, since their liabilities would be located domestically; however, so far empirical evidence is mixed in this regard (Raddatz, 2014).

Although constructed as an asset class,\(^{11}\) geography also continued to matter in the allocation of these flows across EMs. Based on data from the IMF Coordinated Portfolio Investment Survey, as of 2016 more than half of total ICPF investments to EMs were concentrated in five countries: Mexico, South Korea, Brazil, India, and China. Furthermore, there was an increasing awareness among ICPFs that, as their markets grow, EMs could not be treated simply as a homogenous asset class:

> ‘These countries are becoming quite big in terms of size and markets. So, it’s a very diverse asset class, therefore it’s becoming harder and harder to generalise things, you cannot talk about one EM class’ (Interviewee 10, 5 February 2015).

The Minskyan framework proposed in this paper can also account for this spatial differentiation. Whereas EMs as an asset class offer the cash flow and diversification benefit
needed in the era of rising ICPF liabilities, individual EM assets differ with regards to the return/cash flow they provide and where they sit on the liquidity continuum described in the previous section according to their ability to match these liabilities. Such ability depends on the distinct geographical IRM conditions an asset is embedded in.

For example, the ability to sell quickly and at no loss is shaped fundamentally by the breadth and depth of financial markets, their architecture, and actors, including the existence of effective market makers and lenders/dealers of last resort. The extent to which local governance and accounting standards, regulation, and balance sheet rules adhere to AE criteria is another (Hebb and Wójcik, 2005; Soederberg, 2003). In the case of cross-border capital flows, the ability to generate cash flows in foreign exchange, and the regulation of the foreign exchange market to reduce the price risk from exchange rate volatility and secure convertibility into the currency which denominates ICPF liabilities, are essential. Therefore, it is unsurprising that the biggest five EM recipients have the deepest and most liquid financial markets, internationally traded currencies, and high levels of foreign exchange reserves – all among the top 20 globally according to BIS and World Bank data. Similarly, a country can join the investable EM group, if structural improvements guarantee a minimum degree of stability, or be forced to leave it, should their currency convertibility be called into question. Many interviewees, for example, voiced their concerns about Russia, which despite solid ‘fundamentals’ had an extremely volatile currency, mainly due to (geo) political uncertainty.

In sum, the above section has shown how structural liability pressures, in the form of persistent funding deficits, have induced changes in ICPF asset allocations and ‘pushed’ them into EM assets. Even if ICPFs would like to hold ‘safe’ assets which perfectly match their liabilities, these deficits have meant they had to invest into high-return assets such as EMs. Spatial variegation was the result of different return–liquidity characteristics. This liability-driven allocation of portfolios, however, has important implications for financial stability which we turn to in the next section.

**LDI and financial stability in EMs**

The key contention put forward is that EM assets are ultimately not well suited for matching ICPF liabilities due to their peripheral position in the spatially uneven international monetary and financial system. Although specific locations might increase the attractiveness of their assets through the IRM factors listed above, the structural monetary and financial subordination of EMs means they will not be used as liability-matching assets, and therefore need to offer higher cash flows and will only be bought to be part of the return-seeking portfolio.

First, the concentration of global liabilities in AEs and their mediation through the corresponding financial centres means that these locations exert pressures on the rest of the world to ‘model’ assets according to their domestic market characteristics (Bassens, 2012; Gowan, 1999; Hebb and Wójcik, 2005; Leyshon and Thrift, 1997). Deviations of these have to be compensated by higher cash flows. Whereas these deviations are inherent to cross-border flows, which by definition span different IRM conditions, they are arguably worse in EMs given their historically distinct institutional set-ups, regulatory regimes, and governance structures. Moreover, EM financial markets remain thinner and undeveloped. This is partly a result of their general development trajectory, but also due to the centrifugal tendencies of financial activities (Clark, 2005; Dow, 1994). So far, liquidity remains concentrated in the financial centres of AEs which puts EMs at a structural disadvantage to the assets issued in these locations.
As a result, EM bonds cannot fully match the interest rate exposure of ICPF liabilities. LDI strategies involve government bond purchases that are exposed to the same interest rate sensitivity as ICPF liabilities. EM bonds fail to do so for two reasons. First, ICPF liabilities are discounted with high-quality bond rates. As of 2015, the average S&P rating for EM sovereign bonds was BBB (Amstad and Packer, 2015). Second, EM bond yields are unlikely to be representative rates for ICPF. While EM bonds have grown substantially in terms of market capitalisation, they remain a relatively small component of world debt markets (SIFMA, 2017). As EM bonds respond to different interest rates, which are not necessarily representative of the rates relevant to AE ICPFs, they fail to properly hedge ICPF interest rate risk induced by their liabilities.

Second, EMs confront severe international monetary subordination given their currencies’ limited international role, in particular for financial transactions (Andrade and Prates, 2013; Bonizzi, 2017a; Kaltenbrunner, 2015). One outcome of this monetary subordination is their structural need to borrow in foreign currency, especially US Dollars (their so-called original sin; see, for example, Eichengreen and Hausmann, 1999). This means that EM debt, unlike most AE debt, bears some degree of credit risk. Whereas in the case of domestic currency debt, the central bank can act as lender of last resort, foreign currency debt engenders liquidity and solvency risk in the case of adverse exchange rate changes and/or an inability to generate the foreign exchange for debt servicing. This adds an element of uncertainty to the cash inflows, which make them unsuitable for matching liabilities.

Finally, although some EM sovereigns, in particular those with larger financial markets targeted by ICPFs listed above, have been able to reduce their foreign currency borrowing (Arslalanp and Tsuda, 2015), the spatial concentration of international liabilities in AEs means that EMs remain structural net private debtors, with their foreign assets mostly consisting of public foreign exchange reserves. Whereas foreign investors have been willing to hold EM domestic assets, their liabilities remain concentrated in AEs and their key financial centres. The asymmetry is even worse when it comes to the currency denomination of these liabilities, which are dominated by a few AE currencies first and foremost the US Dollar (Shin, 2016). This spatial and monetary concentration of international liabilities continues to expose EMs to substantial exchange rate volatility largely independent of domestic economic conditions (Kaltenbrunner, 2015; Kohler, 2010). This exchange rate volatility, however, creates significant risks for international investors, in particular those holding domestic currency EM assets. This is particularly true for ICPFs investing in EMs: their liabilities are firmly embedded in their home countries and denominated in their currencies, whereas their assets are in (highly volatile) EM currency – a currency mismatch that renders liability matching impossible for ICPFs.

For all these reasons, EM assets are bound structurally to remain in the return-seeking portfolios of ICPFs. Again, quoting a pension fund investment officer: ‘I could certainly tell that we do not nor would we for the foreseeable future regard these assets suitable for liability-matching purposes. They are part of the return-seeking portfolio’ (Interviewee 9, 5 February 2015).

As discussed in the previous section, the demand for EM assets therefore needs to be understood in the context of the changing return-seeking portfolio of ICPFs described in the previous section.

This creates two types of vulnerabilities. First, the very fact that EM assets are considered return-seeking assets puts them in competition with many other assets classes that can perform the same role. Such a competition makes the demand for EM assets very unstable and sensitive to changes in the domestic and international environment, and to the changing availability of other return-seeking assets.
Second, the LDI framework shows that ICPF demand for EM assets depends largely on the conditions that create a need to seek return-seeking assets, which are entirely independent of economic conditions in EMs. This, as shown in the ‘LDI and ICPF investment in EMs’ section, has been exacerbated by the deterioration of ICPF funding levels, driven by low interest rates and a shortage of safe assets, which force them to look for alternative returns.

This, however, also shows that ICPF recent portfolio changes have not been entirely ‘voluntary’ or unconstrained investment choices. Given the institutional and regulatory pressures over liabilities discussed in the previous sections, ICPFs would ideally prefer to increase allocations to safer assets and reduce their exposure to return-seeking assets altogether, thereby immunising their funding levels from the volatility of their liabilities. As a pension fund investment officer points out:

Then there’s a headline deficit, again this is in common with most comparable funds. But that arguably reflects the very low bond yields that are currently prevailing in the UK and in other developed markets ... if we were in a situation where we could de-risk, we would and will. (Interviewee 9, 5 February 2015)

These structural pressures mean that any changes in the liability conditions that improve ICPF funding levels could lead to a major reallocation of portfolios away from EM assets (again entirely unrelated to their domestic conditions). ‘If the funding level goes up, so there’s no need to increase allocation to growth assets, and literally buy lots of UK government bonds and go back to sleep’ (Interviewee 12, 11 March 2015) present like interview quotations above?

**Conclusions**

This paper has analysed the allocation of ICPF flows to EM assets. It has argued that a crucial element in the determination of these flows is the structural pressures emanating from their liabilities, in particular with reference to the distinction and relative need of ‘return-seeking’ or ‘liability-matching’ assets – a point not fully appreciated in the debates around ‘pension funds capitalism’. To substantiate this argument theoretically, the paper developed and applied a Minskyan framework to the behaviour of ICPFs.

Based on these theoretical observations, we have argued that the current demand for EM assets can be understood as part of a broader sectoral trend. Low interest rates create balance sheet-induced pressures on ICPFs to generate returns, which is however constrained by the need to match liabilities. This pushes ICPFs towards non-traditional asset classes, which can promise sufficiently high returns, while providing diversification benefits between them. The recent surge in ICPF allocation to EM assets has to be seen in this light. However, the paper also argued that ultimately, given their distinct characteristics and structural subordination in a spatially uneven international monetary and financial system, EM assets are not fit for liability-matching purposes. This means they are only sought to be part of ICPFs’ return-seeking portfolio, which makes ICPF demand for them very unstable and largely independent of EM domestic economic conditions.

This means, in contrast to what has been advocated by pension fund optimists and international organisations, ICPFs will not stabilise EM financial markets. ICPFs may have a long-term outlook and potentially reduce short-term volatility, but the structural pressures emanating from their liabilities, firmly embedded in AE, and the large size of these institutions, imply that any relevant change in AE conditions may have severe implications.
for EMs (as indeed evidenced by the IMF (2014) during the global financial crisis of 2008). This financial instability, however, undermines EM assets’ ability to be used to meet outstanding obligations and/or to become international unit of accounts, further perpetuating their subordinate position in this spatially uneven international financial and monetary system (and vice versa for those spaces and places sitting on the top).

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Notes
1. LDI is defined here as the investment framework where assets are chosen according to their capacity to be used to meet outstanding and future liabilities. Sometimes LDI is used in a narrower sense to indicate specific types of immunisation strategies that ICPF may use to match their liabilities (Franzen, 2010). We use it to indicate the broader impact that liabilities have on the overall asset allocation framework of ICPF.
2. Thus, dominant money and financial capital acts as a ‘financial homogeniser’ (Leyshon and Thrift, 1997), while never eradicating spatial variegation which is the sine qua non for financial returns and arbitrage opportunities (Bryan et al., 2017; Christophers et al., 2017; Pryke, 1994). Indeed, while pushing for the reduction in certain risks stemming from geographical differences, e.g. through global governance standards and/or balance sheet rules such as Basel (Soederberg, 2003), the actions of dominant capital might create new territorialisation (Barnes and Christophers, 2018), though potentially more on its terms (e.g. the constructed geographies of EMs) (Sidaway and Bryson, 2002).
3. A different approach to ‘spatialize’ Minsky’s is put forward by Dymski (1999) who argues that flows between ‘bordered economies’ are nominal flows which, if chasing real asset, can give rise to asset bubbles, though mediated by specific spatial factors.
4. ICPF, it was argued, used a too high discount rate, which resulted in an underestimation of their liabilities. The main issue in this literature, particularly in the context of increasingly complex investments such as mortgage-backed securities, became the change in pension fund governance based on the primary goal of ‘ensuring pensioner security’ (Monk, 2009: 872).
5. This point also applies to a relatively large literature in the field of finance, fundamentally concerned with understanding the microeconomic behaviour of ICPF, and how liabilities may affect the incentive structure in favour of more or less risky assets (Novy-Marx and Rauh, 2009; Rauh, 2009).
6. Regulatory changes regarding the discount rates that ICPF use to calculate the present value of their future cash outflows have also played a role in the adoption of LDI. Since the ‘perfect storm’, regulation and accounting rules have moved towards a marked-to-market reporting of both assets and liabilities, which means ICPF liabilities are periodically readjusted in line with current interest
rates (Franzen, 2010; Pugh and Yermo, 2008). As a result, officially reported liabilities have become more volatile, driven by the movement of the underlying discount rates, which has further reinforced ICPFs’ need for LDI.

7. In this context some interviewees highlighted the rise of ‘diversified growth funds’, which respond to ICPF need for return-seeking assets by investing across several – but not pre-set – asset classes. ICPFs may therefore be exposed to certain risky assets without fully being aware of it.

8. Comprehensive data on funding deficits across countries do not exist, but similar dynamics can be found for the UK (Pension Protection Fund, 2016) and Japan (BoJ, 2018).

9. Bonizzi (2017b) presents econometric results, suggesting that a higher aggregate funding deficit in AE increases institutional investors’ allocation to EMs.

10. Source: IMF BOPS.

11. As highlighted by financial geographers, e.g. (Sidaway and Bryson, 2002) the term EMs itself is a constructed category to make these assets ‘investible’ for AE investors. It is subject to change, depending on metrics designed in AE financial centres and the specific (political) purpose used. Based on the MSCI Emerging Market index 2014 we have included: Argentina, Brazil, Chile, China, Colombia, Czech Republic, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey.

12. A discussion of the reasons for this international monetary subordination goes beyond the remit of this paper. In a nutshell, whereas neoclassical authors largely base those in national policymaking, e.g. EMs’ inflationary past (Burger and Warnock, 2006; McKinnon and Pill, 1998), heterodox economists and critical political economy scholars focus on EMs’ subordinate integration in the international economy, ranging from their colonial dependence and role as commodity producer to the self-perpetuating power asymmetries in an unevenly structured international financial system (Andrade and Prates, 2013; Kaltenbrunner, 2015).

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References


