Too connected to fail: the regulation of systemic risk within Australia’s superannuation system

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ABSTRACT

The funds, entities, and regulators involved in the Australian superannuation industry together comprise a system that is complex and dynamic. The differentiation between roles and the distribution of responsibility amongst entities provides the system with a measure of resilience against the local failure of any one of the entities. However, the interconnections that bind and constitute the system also have the potential to transmit risks within the system, creating the potential for the impact of local failures to amplify through propagation, or in other ways to pose risks to the system as a whole. This article uses a new data set on 200 of Australia’s largest superannuation funds to map and assess those links and to identify the challenges those links pose to the scheme of prudential regulation applied to the superannuation system in Australia. It finds that the function of the entity and the legal form of the linkages, both of which are more variegated than typically occurs in banking sector transactions, crucially influences whether, and to what extent, various types of failures might be transmitted across the system. It also finds that we may be materially under-estimating the possibility that local failures in the superannuation system, which are a near certainty given the current regulatory risk appetite, will have a systemic impact. The findings have broad application across pension and institutional investment markets worldwide.

KEYWORDS: superannuation; pensions; prudential regulation; trust; systemic risk; contagion

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INTRODUCTION

Australia’s superannuation system is a key pillar both of government social policy and Australia’s financial markets. Legislated compulsory contribution to the system means that over 90 per cent of the adult-age workforce is a member of a superannuation fund.\(^1\) As a result, the system has accumulated assets of over two trillion dollars,\(^2\) making it the largest pool of investible capital in Australia and the 4th largest privately managed retirement incomes pool in the world.\(^3\) The efficiency and the resilience of the system are therefore crucially important for Australia. It is perhaps not surprising, then, that efficiency issues have been subject to recurrent scrutiny in recent years. Both the government’s Review of the Governance, Efficiency, Structure and Operation of Australia’s Superannuation System (often termed the ‘Cooper Review’) and the Financial Systems Inquiry (FSI) expressly considered the efficiency of the system. The resilience of the system, on the other hand, has not hitherto been subject to any concentrated attention.

The system is, as one of its key architects described it, ‘government sponsored but privately managed’.\(^4\) That is to say, contributions to the system are mandated by legislation but the management of assets is by private sector organizations. In addition to the funds, the system has a great many organizations specifically dedicated to facilitating the accumulation of retirement savings, including investment managers, custodians, administrators, actuaries and consultants in the delivery of investment vehicles. The result is an interconnected and dynamic system of intimidating complexity.

The lengthy roll-call of participants in the superannuation system suggests that the system may be diverse. Diversity, in turn, offers the prospect of resilience in financial markets, as it does in ecosystems.\(^5\) Resilience is the capacity of a system to withstand external shocks and retain its essential characteristics.\(^6\) Diversity within a system can assist the system as a whole to withstand exogenous shocks even if individual component parts of the system fail in some way. That is to say, local perturbations need not translate into systemic failure. This is an important issue for a system with the social and economic importance of Australia’s superannuation system.

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\(^3\) OECD, Pensions at a Glance (2013) 193.


On the other hand, linkages between component parts can mean that the impact of local failure can be felt on a much wider scale. Risks can propagate through these linkages. Risks may even in some circumstances be created or amplified by these linkages. This article considers those possibilities in the context of the Australian superannuation system and starts to analyse the implications for regulation of that system.

To understand how these systemic risks might arise it is necessary to understand and recognize the sometimes subtle role played by legal definitions, institutional form and operational practices in defining, locating and transforming risks at a local level within the system. This article therefore uses a unique Australian dataset: a rich sample of 200 superannuation funds, comprising approximately 98 per cent of prudentially regulated assets in the system, to map how the structure of the system affects its ability to withstand different types of shock. In particular, it identifies that the aetiology of propagation across the system is crucially determined by two factors: the function of the entity and the legal character of the links between entities. This distinguishes this analysis from similarly-motivated research into the banking and insurance systems in which both the entities and linkages are comparatively more homogeneous.

The article proceeds as follows. The Section ‘Australia’s Superannuation “System”’ introduces the idea that the collective activity known as superannuation is appropriately thought of as a ‘system’ comprising multiple different types of actors linked in a variety of ways. It also introduces the concept of ‘systemic risk’ as that term is used in this article. The Section ‘The Institutional Structure of the Australian Superannuation System’ then presents a detailed empirical description of the key entities involved in the Australian superannuation system. The Section ‘The Types of Linkages and their Consequence for the Transmission of Risk’ introduces and describes the nature of the linkages between those entities, while the Section ‘Prudential Regulation of the Australian Superannuation System’ describes the regulatory scheme applied to the superannuation system in Australia. Finally, the Section ‘Regulatory Implications’ assesses the challenges posed by the fragmentation and interconnectedness of the system described in the Sections ‘The Institutional Structure of the Australian Superannuation System’ and ‘The Types of Linkages and Their Consequence for the Transmission of Risk’ for the practice of prudential regulation and supervision described in the Section ‘Prudential Regulation of the Australian Superannuation System’.

The analysis draws a number of conclusions and makes several suggestions for reform. In its simplest form, the analysis in this article suggests that we may be materially under-estimating the possibility that local failures in the superannuation system, which are a near certainty given the current regulatory risk appetite, will have a systemic impact, and that the Australian Prudential Regulation Authority (APRA) is only partly oriented towards addressing this risk. It suggests that an evolution in orientation and mindset, and an expansion in jurisdiction, is required for APRA to start to monitor and address the risks this article has identified. More generally, though, the research highlights the importance of service providers in and around the financial system and the way in which intermediation and outsourcing complicates the practical application of regulatory strategies, and prudential supervision in particular.
The analysis, though focused on Australian circumstances, has relevance beyond Australia. It is readily applicable to any of the number of common law jurisdictions in which government policy has seen responsibility for the provision of retirement incomes devolved to individuals and financial market participants, most obviously the United Kingdom, United States, Canada, and New Zealand. Aspects of the analysis, including recognition of the importance of the aetiology of interconnectedness, will have resonance beyond even those boundaries. It is moreover a further reminder of the crucial role played by service providers in many financial markets, and of the challenges faced by regulators in incorporating such entities within their supervisory activities.

AUSTRALIA’S SUPERANNUATION ‘SYSTEM’

Stripped of its social policy dimensions, Australia’s superannuation system exists to administer the process of accumulation and decumulation of capital by individuals.7 The various institutions collect and invest monies on behalf of individuals, and then return monies according to some pre-determined calculation (different depending on the nature of the scheme) to those individuals upon retirement.8 This is of course distinct from the policy objectives, such as nation building and the transfer of responsibility of providing retirement incomes to individuals,9 that underpin the measures taken by the government to promote use of the system by citizens and the economy. What we are concerned with here is the way in which the system provides the instrumental capabilities required to administer that process of capital accumulation.

Unlike some other sectors of the Australian economy, such as banking and insurance, Australia’s superannuation system comprises a diverse assemblage of entities. The entities interact in a variety of ways. Crucially, these entities, and the interactions between them, can be said to ‘constitute’ the system in the sense that together they, and the transactions between them, give it form.10

The key institution in the system is the superannuation fund. A superannuation fund can take one of two basic forms: intermediated and self-managed. There are currently approximately 250 intermediated funds responsible for administering $1,260bn and approximately 550,000 self-managed funds holding $594bn in assets.11 This article focuses on the intermediated funds. Those funds are depicted graphically in Figure 1 below in which the size of the bubble represents graphically the assets

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8 This ‘sole purpose’ is legislatively mandated: s 62. Superannuation Industry (Supervision) Act 1993 (Cth) (‘SIS Act’).
9 Hazel Bateman, Rafal Chomik and John Piggott, ‘Retirement Incomes’, in Kate O’Loughlan, Collette Browning and Hal Kendig (eds), Ageing in Australia: Challenges and Opportunities (Springer 2015).
10 A sidenote of clarification is warranted at this point. The phenomenon under examination here has been characterized consistently in this article as a ‘system’ rather than a ‘network’, ‘industry’, or ‘market’. This follows Meadows description of a system as ‘an interconnected set of elements that is coherently organized in a way that achieves something’ which helpfully highlights that a system is constituted both by the elements present in the system as well as the interconnections between those elements. Donella Meadows, Thinking in Systems (Chelsea Green 2008). As shown in the current article, for the most part the interconnections considered below are legal, financial, and informational transactions.
11 APRA (n 2).
under management within the fund. The data underlying this graph, and for the
graphs and detailed analysis presented later in this article, are as at 30 June 2012. It is
based on a unique database comprised of data compiled and checked by hand by the
authors from publicly available fund-level documents, such as the Annual Reports
and product disclosure statements, published by the trustees of over 200 superannua-
tion funds, supplemented by data drawn from statistics on each fund available from
APRA on its website.\footnote{www.apra.gov.au/Super/Publications/Pages/superannuation-fund-level-publications.aspx} These filings are considered reliable because of the severe
regulatory consequences for the trustees issuing them should the documents be
found to contain inaccuracies or misrepresentations. Although inevitably there have
been funds that have departed and merged, as well as some new entrants to the
system, in the period since that reporting date, these do not affect the conclusions
drawn in this article. The data is complete for all analysis reported in this article.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Map of the Australian superannuation system (Funds by Assets under
Management (AuM) as at 30 June 2012).}
\end{figure}

The impression of the superannuation system inspired by Figure 1 is one of diversity. As the Section ‘The institutional structure of the Australian superannuation system’ develops in more detail, none of the funds would appear, on the face of this representation, to be ‘too big to fail’.

This impression is however misleading in at least one important respect. A modern superannuation fund is a ‘virtual’ institution. In Australia it typically takes the form of a trust. The trust instrument (usually a deed) empowers a single entity (referred to, rather prosaically, as the ‘responsible entity’ in the legislation and regulatory instruments) to act as trustee, which may, as outlined below, employ agents contractually to assist in various aspects of the administration of the trust. This proves to be crucial for the analysis in this article. It is axiomatic from a legal perspective that, unlike a corporation or a statutory body, a trust has no separate legal existence. Strictly it is a set of (equitable) obligations owed by an individual or individuals (the trustee or trustees) to another set of individuals (the beneficiaries, or in the case of a superannuation fund, the members) in respect of certain property (the fund) held by the trustees.

In the paradigm case, a trustee has responsibility for administering the trust personally. However, the courts have for some time accepted that for practical reasons the trustees of superannuation funds may need to ‘outsource’ some of the activities required to administer the trusts, so long as they do not thereby purport to delegate their discretion. As a result, the trustees of most superannuation funds today outsource at least some of these activities, especially those, such as member benefit administration, custody of the assets and investment management, in which there are economies of scale beyond the reach of individual funds or in which specialist skills are required. The typical superannuation fund, then, is not a discrete commercial entity, such as is commonly the case with a bank or insurance company in which core functions are vertically and horizontally integrated. It is rather a collection of disparate entities, selected, directed and monitored centrally by the trustee.

This observation is crucial when it comes to identifying sources of systemic risk in Australia’s superannuation system. The notion of ‘systemic’ risk in financial markets has attracted much attention in recent years. In some cases the phrase ‘systemic risk’ is used to connote the links between the financial sector and the real economy posed by price fluctuations in capital markets. However, the global financial crisis of

2008 provided a stark reminder that risk cannot always be absorbed and distributed purely by price action on securities exchanges and other markets. The failure of entities within the system can disrupt the functioning of the system itself. This possibility is captured in the definition of systemic risk provided by Besar and others:

‘A systemic risk materialises when an initial disturbance is transmitted through the networks of interconnections that link firms, households and financial institutions with each other, leading as a result, to either the breakdown or degradation of these networks’.18

Notably, there is no reference in this definition to the quantum of the initial disturbance. Clearly there are some exogenous shocks that are of such a magnitude that their occurrence would affect the whole financial system. Default by a major sovereign borrower (as occurred in Argentina in 2002 or Russia in 1998), temporary closure of a securities exchange (as occurred following the terrorist attacks on New York in September 2001) or removal of a currency from an exchange rate regime (as occurred when Sterling was removed from the Exchange Rate Mechanism in September 1992), are examples of such shocks. They are inescapable simply because of their magnitude.19 Shocks of this magnitude may, depending on the circumstances, have serious implications for the superannuation system also. They are however increasingly well understood and incorporated into the practice of prudential regulation around the world.

The primary focus of this article lies elsewhere. The focus here is on the way in which the effects of a relatively small, local disturbance might be transmitted across the networks that constitute the system in such a way that its ultimate effect is far greater than is suggested by its initial manifestation. This is sometimes termed the ‘butterfly effect’ in popular accounts of the phenomenon.20 It is a much less easily analysed source of risk; one that requires much closer attention to the detail of the dynamics of the system. It is also quite likely beyond standard econometric measurement of the type often used in regulatory monitoring because of its adaptive, reflexive and evolving nature.

The other notable element of the definition offered by Besar and others is the criterion employed for identifying a risk as systemic: that it results in breakdown or degradation of the network. The focus then is not purely on fluctuations in securities prices, but on the functioning of the network itself. There may indeed be coincident price volatility, but a risk is ‘systemic’ in the context of this article when its

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20 James Gleick, Chaos: Making a New Science (Viking 1987). This reference has a much longer provenance than is somewhat appreciated. Although popularized by Edward Lorenz, the notion that the tragic travails of a butterfly could influence events distant in time and geography can be traced back to Ray Bradbury’s science fiction short story of 1952, ‘A Sound of Thunder.’
occurrence threatens the functioning of the network and hence its ability to achieve its objectives.

Analysis of the endogenous sources of systemic risk to the superannuation system must therefore encompass not just the trustees of superannuation funds but also the constellation of entities that assist the trustees to administer the funds. It must recognize the presence of links between those entities because those linkages are the paths by which local failures may in certain circumstances be transmitted across the network. Take a simple example: it is obvious that the relationships between the funds and these other entities create bilateral dependencies between the funds and their service providers. Failure in one entity will have consequences for those with which it is connected. Indeed, the concentration in some of the service provider markets identified in the Section ‘The institutional structure of the Australian superannuation system’ below means that even ‘local’ failures could affect a large number of funds. Moreover, the effects of such local failures, even if they do not result immediately in failures in the entities with which the failed entity does business, may be transmitted, like a ‘ripple effect’, across the network. The result is that funds, or even service providers, which conduct no business directly with each other may nevertheless be affected by local failures elsewhere in the network as a consequence of a chain of connections across the network. Indeed, estimates from the data set used in Figure 1 above suggest that few entities are separated by more than four degrees from all others in the system; a ‘small world’21 indeed.

Assessment of this phenomenon requires close attention not just to the existence of the linkages but to their nature. The mere fact that two entities are connected does not say very much about how different types of risks will in fact be allocated or transmitted between them. The legal form of the linkages (contract versus trust, for instance) crucially influences whether, how and to what extent various types of failures are transmitted across the system.

THE INSTITUTIONAL STRUCTURE OF THE AUSTRALIAN SUPERANNUATION SYSTEM

Figure 1 above demonstrated that the Australian superannuation system appears diverse when viewed from certain perspectives. This impression is not entirely an illusion. For instance APRA reports that there were 248 registered superannuation entities as of 31 March 2015.22 That is down over 90 per cent over the past 12 years, largely as a result of the introduction of a licensing regime imposed in 2005 that saw all entities purporting to act as trustees of superannuation required to gain a Registrable Superannuation Entity (RSE) licence from APRA.23 Indeed as recently

22 APRA (n 2).
as 2012 APRA\textsuperscript{24} reported a Herfindahl-Hirschman Index (HHI)\textsuperscript{25} of less than 300 using the methodology of the United States Department of Justice (DoJ). That is a level that the DoJ regards as well inside the threshold for an ‘unconcentrated’ market.\textsuperscript{26} This should come as no surprise. In the dataset on which the descriptions and analysis below are based, the largest 10 funds by assets together command just 27 per cent of the market share of the superannuation industry. The largest fund, AMP Superannuation Savings Trust, administers approximately $52bn on behalf of 2.9 million members. This represents a market share (by assets) of approximately 6.2 per cent of all APRA regulated funds. The largest not-for-profit fund, Australian Super, administers $47.8bn on behalf of 1.9 million members; a market share of approximately 5.7 per cent.

The problem, as was alluded to above, is that this perspective only presents part of the picture. The institution that is the modern Australian superannuation fund encompasses not just the fund of assets administered by the trustee on behalf of members, but also the complex web of legal and other relations required for its administration.

Figure 2 presents graphically this richer representation of the Australian superannuation system. It shows the service providers in the system and the size of the nodes is proportional to the sum of assets under management of the funds to which the services are provided. Figure 2 was created using the social network analysis tool called Gephi.\textsuperscript{27}

Figure 2 highlights the complexity of the system. It is a network with a great many nodes and interconnections. Importantly, no attempt here is made to delineate distinctively in Figure 2 the different types of linkages (trust, agency, contract and so on) described in detail later in this article. This is because, as is discussed later, many of the relationships are comprised of multiple linkages of different types and also because the presence of bespoke limitation of liability clauses and the like might render such apparent precision misleading.

Irrespective of these limitations, Figure 2 demonstrates the fact that a small number of service providers are highly connected. Importantly, they are not all large organizations (though some are). Whether they are too ‘connected’ to fail is too complex a question to be answered simply based on their connectedness but it is clear that these entities are in certain respects crucial to the smooth operation of the system. Many other entities rely on them directly and they also represent nodes in the system through which risks could potentially propagate quickly. Their individual criticality to the functioning of the system will depend on the sorts of issues identified in the Section ‘The types of linkages and their consequence for the transmission of risk’, in particular, below.

\textsuperscript{24} APRA, Annual Superannuation Bulletin (2012).
\textsuperscript{25} Albert O Hirschmann, ‘The Paternity of an Index’ (1964) 54 American Economic Review 761.
\textsuperscript{26} See Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines (2010, Washington) 19.
\textsuperscript{27} Gephi is an open source software package that enables the analysis and portrayal of network structures and dynamics; Mathieu Bastian, Sebastien Heymann and Mathieu Jacomy, ‘Gephi: An Open Source Software for Exploring and Manipulating Networks’ (2009) International AAAI Conference on Weblogs and Social Media. It is used here primarily to record and represent in graphic form the presence of linkages between entities in the superannuation system.
One of the main reasons for this dependence on a few key nodes in the system is the concentration present in a number of service provider markets. This is evident in the analysis reported in Table 1. Table 1 draws on the same underlying data-set of reported fund sizes and linkages used to generate Figures 1 and 2. It distinguishes
between six different types of service provider on the basis of their function in the system.

Member benefit administration involves processing and recording the transactions between the trustee and its members (most notably the processes of subscription and redemption) and the transactions of the members within the fund (for instance members switching between investment options with a fund). The member benefit administrator may also facilitate communication between the trustee and its members (for instance distributing regular reports and managing website and call centre facilities).

Custody has, as its core, the holding of legal title to fund assets on behalf of the trustee to facilitate efficient trading and record-keeping but modern custodial services typically go well beyond this. They may encompass some or all of what might be thought of as ‘informational’ services such as portfolio valuation, reporting on corporate events relevant to the assets, performance reporting, tax reporting, the provision of reports suitable for provision to a regulator and the calculation of unit prices at a fund or sub-fund level, as well as so-called ‘value added’ services such as taking deposits, undertaking foreign exchange transactions, facilitating securities lending and borrowing, and arranging proxy voting.

Most Australian superannuation funds provide members with the opportunity to purchase three forms of insurance: life insurance, total and permanent (TPD) disability insurance and income protection insurance. These are typically purchased on a group basis by the trustee on behalf of participating members.

Trustees also commonly retain a variety of providers of advisory services. These include lawyers, auditors and (where circumstances require it) actuaries. Some funds also appoint asset consultants to advise on the design and implementation of the fund’s investment strategy, as well as investment managers to implement that strategy. Of these, two are not included in the results reported in Table 1: investment managers and lawyers. Investment managers (of which there are approximately 3000 in the data-set) are not included in the analysis here because for the most part their role in large scale superannuation funds is a purely advisory one. Although sometimes described as a ‘separate account’ business, they in fact do not hold title to the assets. They can give instructions to the custodian and act as an agent in respect of certain markets but from a (narrow) functional perspective are not integral to the operation of the system.

The funds’ lawyers, similarly, are ‘merely’ advisers, but there

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29 This is not to understate their importance in other respects, such as in the process of capital allocation and market pricing, or the possibility that correlations in their behaviour may be matters of concern for macro-prudential policy, but that is beyond the focus of this article. On the potential impact of correlated behaviour, see Adam Clements and Michael E. Drew, ‘Institutional Homogeneity and Choice in Superannuation’ (2004) 17 Accounting Research Journal 102. In the UK, see Bank of England, ‘Procyclicality and structural trends in investment allocation by insurance companies and pension funds: A Discussion Paper by the Bank of England and the Procyclicality Working Group’, <www.bankofengland.co.uk/publications/Documents/news/2014/dp310714.pdf> accessed 10 July 2015. Also David Blake, Bruce Lehmann and Allan Timmermann, ‘Performance Clustering and Incentives in the UK Pension Fund Industry’ (2001) 3 Journal of Asset Management 173.
is an additional complication in that the extent and nature of their actual involvement in the administration of each fund is impossible to gauge from the disclosures.

The results reported in Table 1 are quite striking. Table 1 demonstrates quite clearly that there is considerably more concentration in the custody, member benefit\(^{30}\) and insurance industries that serve the trustees of funds, than in the list of superannuation funds themselves. Using the DoJ terminology, HHI measures of greater than 1500 are associated with 'moderately concentrated markets.' This is not only a concern because of the number of entities that might be affected should one of these key nodes fail. At these levels of HHI, a change in the HHI of 100 as the result of a merger or exit would prompt concern about the level of competition in the market.\(^{31}\)

In other words, the market concentration may also compromise the availability of viable substitutes for the failed provider. Failures by a provider that might not of themselves directly impose financial losses on the superannuation fund could become considerably more serious if no alternative provider can be identified and retained in a realistic timeframe.

There is moreover a dimension that even this analysis does not capture. A number of the larger providers of custody, member benefit administration and insurance services in the superannuation system are part of large financial conglomerates. Indeed vertical integration is quite pervasive in some parts of the system.\(^{32}\) To make matters more complicated, the integration occurs in a variety of forms. The most obvious is the universal bank model in which a financial group may have present within it subsidiaries delivering custodial, banking, insurance, asset management and advisory services to the trustee subsidiary\(^{33}\) as well as its external clients. There are also trustees that have used funds held on trust to establish (either by themselves or in collaboration with other funds) subsidiaries that provide asset management, member benefit administration and advisory services to the trustee. And finally there are firms that provide more than one type of advisory service (for instance actuarial and auditing; investment management and asset consulting) into the market. It seems reasonable to suppose that these alternative models of financial and operational integration distort the dynamics of the system, including its capacity to disseminate and absorb risk.

The dense network of connections and complicated institutional ordering described in this section on its face suggests that models of contagion and chaotic sensitivity applied in other complex systems may have application in this context also. That does however presuppose that the linkages identified have the potential to act as transmission mechanisms of the type required to engender those system dynamics. It is therefore to the nature of those linkages that attention needs to turn next.

\(^{30}\) Notably, there also has been a merger of two of the largest member benefit administration service providers that is not reflected in this data, which would suggest that the current HHI is considerably higher than that measured using this dataset.

\(^{31}\) Department of Justice and Federal Trade Commission (n 26) 19.

\(^{32}\) This is true also of Australia’s financial system overall: FSI (n 7) xvi, 19, 255.

\(^{33}\) Notably the technique of ‘entrenching’ such links in the governing rules of the fund in order to bypass conflicts of interest concerns has recently been rendered void by legislation: section 58A of the SIS Act was inserted by Superannuation Legislation Amendment (Service Providers and Other Governance Measures) Act 2013 (No. 61, 2013). Nevertheless, the practice of appointing related parties remains pervasive, albeit now conditioned by greater trustee attention to the process by which such appointments are made.
THE TYPES OF LINKAGES AND THEIR CONSEQUENCE FOR THE TRANSMISSION OF RISK

The notion that modern financial institutions are linked in complex ways is hardly new. The literature in the banking and insurance domains is extensive and extends back almost 20 years. The literature focuses primarily on the ways in which two types of risk, liquidity risk arising from a temporal mismatch of assets and liabilities and financial risk arising from a deficiency in assets compared to liabilities, can propagate such that local failures can pose a risk to the system as a whole. The development and proliferation of ever more intricate financial instruments is both a cause and a result of this complexity, which now exists on a cross-border and cross-sector basis.

Australia’s superannuation system is in some ways a microcosm of this global phenomenon. There is however a complicating factor. Because the legal architecture for the superannuation system is provided by trust law rather than contract, the separation of trust assets from those of the trustee means that failure of an entity acting as trustee, though it would undoubtedly be disruptive to the practical administration of the trust, would not directly affect the interests of members in the same way that, for instance, depositors in an insolvent bank would be affected. The court or a regulator may appoint a replacement trustee and the corpus of the fund itself, to the extent that it is not a creditor of the trustee for some reason, should (in theory) be unaffected. Contracts between the retiring trustee and service providers would require novation, or perhaps even re-negotiation, but neither the assets of the fund nor the interests of the members in those assets need be affected. At least that is the premise on which the decision to adopt the trust model in 1993 was based.

In practice things are not so clean. The dependence of the trustee on a wide range of agents means that the administration of a fund can be disrupted in a variety of ways by various types of failures on the part of one or more agents. It is therefore worthwhile examining the nature of the linkages between entities in the system a little more closely.

The linkages between entities (and individuals) in the superannuation system are overwhelmingly of four familiar types: contract, trust, agency, or fiduciary. Some relationships may embody, and indeed be constituted by, more than one type. The role of the custodian, with its manifold facets in a modern superannuation fund, is the most obvious and important of these.

This distinction between different types of legal relationships is crucial to understanding the way in which the consequences of localized failures are distributed between the parties. Put simply, the legal form of the relationship goes a long way to determining who bears the risk. This in turn crucially affects how far and along which pathways a local failure might be transmitted. However, as with many complex systems, even comparatively simple rules can quickly generate great complexity.

Take for instance the failure of a contractual counterparty to meet its obligation under a contract. Paradigmatically, the party in breach will have to pay damages to compensate the other party. If the breaching counterparty is insolvent, and the obligation was unsecured, the disappointed party will have to prove in the insolvency and is likely to suffer both a reduction in the amount received and delay in receipt of those monies. In some circumstances those consequences may be sufficiently serious for the disappointed party itself to come under financial or operating pressure. At some point, the consequences for the disappointed party may be so serious as to cause it to default on some of its own obligations, causing the consequences of the original failure to propagate to a new set of entities. Or it may be that a number of defaults by different counterparties, each of them insubstantial in themselves, accumulate to a critical mass within an entity to cause it to fail.

Of course contractual relationships do not only fail, in the sense employed here, when there is a default in payment or delivery of service arising from the insolvency of one of the parties. For instance, they may also fail because the negligence of one party causes the other loss. Moreover, the original source of the loss may be some distance from the final claimant. Consider for instance how an error in a security calculation by the custodian of an investment vehicle in which superannuation funds invested might affect a chain of valuations and transactions throughout the system, with each party who is adversely affected then seeking financial compensation back up the chain from the party on whom they relied. The situation will be further complicated by the presence of limitation and exclusion of liability clauses in key contracts. So even with contractual relationships, arguably the simplest of the forms of relationship to analyse from a systems perspective, identification of the existence of a link will not necessarily illuminate accurately the potential for risk to be transmitted across the link.

39 This latter classification, fiduciary, here refers to relationships other than those more specifically designated as trust or agency relationships. They may arise on the facts or from the nature of the office; Hospital Products v United States Surgical Corp (1984) 156 C 41. Familiar examples include company directors and financial advisers.
41 Donald and Nicholls (n 28).
42 David Winterton, Money Awards in Contract Law (Hart 2015).
The trust relationship is more complex. As noted above, the modality of the trust is often employed as a way to quarantine certain assets from the sorts of risk propagation under consideration here. In the paradigm case, the assets held by the trustee are not available to meet the debts of that trustee, unless those debts were properly incurred by the trustee in its administration of the trust. Here, too, this simple principle can quickly generate complexity in the real world, as the litigation in respect of the Lehman Brothers insolvency highlights. Intermingling of client monies, together with multi-faceted relationships between Lehman brother entities inter se and with their respective customers, created a situation of staggering complexity even where, in principle, it was agreed that client monies held on trust (for instance in the custody business) were quarantined. Conditions applied to the trustee’s right of indemnity can further complicate matters.

Importantly, the regulatory scheme applied to the superannuation system does not prescribe exhaustively the form or content required of the legal arrangements constituting the system. The Superannuation Industry (Supervision) Act 1993 (Cth) (‘SIS Act’) prescribes certain types of provisions (certain indemnity and limitation of liability clauses for instance) and inserts into trust instruments certain provisions (most notably a set of covenants governing the qualities of conduct expected of the trustee and their directors). There is also a small collection of rules, mostly imposed by the Prudential Standards enforced by APRA (on which, see more below), that govern the content and form of contracts between RSEs and their agents. On the whole, however, parties are given considerable latitude to negotiate privately the terms of trust instruments and key contracts in the superannuation system.

The customization of trust deeds, together with the proliferation of idiosyncratic contractual terms and the diverse situational circumstances of agency and other fiduciary relationships, renders any universal and comprehensive description of the linkages in Australia’s superannuation system impossible even if all the information were observable. The network is simply too conditional and adaptive. However even this brief, principle-guided description highlights the two key risks that can be transmitted through such a network: financial loss and delay. The relevance of this finding for this article is that different regulatory techniques may be required to address these two types of risk, a point that is developed further in the Section ‘Regulatory Implications’ below.

Notably, the two types of risk are not necessarily independent. Temporary delay in a payment could, in certain circumstances, have flow-on consequences.

48 The halts in trading in certain exchange-traded funds shares on 25 August 2015 illustrate vividly the way in which even short delays in pricing information or in trading execution can cause material disruption and disproportionate financial losses; Kirsten Grind and Bradley Hope, ‘New Computer Glitch is
Moreover, the effects may be hard to observe and near impossible to measure. The temporary freeze placed on the assets held on trust by Barings and by Lehman Brothers in their custodial businesses undoubtedly distorted the management of the broader portfolios of assets of their clients’, requiring those clients to use liquid assets from other parts of their portfolio to meet trading and other calls on their liquidity.49 So, to take this example, a failure outside the system could infect the system and transform once inside the system from a delay into an unmeasured financial loss (arising from the sub-optimal trading required within the portfolio).

Finally, this article has focussed hitherto on the role played by the linkages created by legal relationships in creating pathways for risk propagation across the superannuation system. However, the propagation of failure is not the only way in which local behaviour can create risks with systemic proportions. Correlated behaviour can also create such risks. Observed locally, such behaviour may be unexceptionable and even optimal. That local optimality may not translate into systemic optimality when, for instance, a large number of apparently independent entities behave similarly. Such correlated behaviour can arise as a consequence of legal rules or simply as a result of the social links between human participants in the system. So for instance the application of the so-called ‘prudent man’ rule to trustee investing does encourage trustees to view the investment of the funds under their trusteeship through a certain, shared prism.50 Any shortcoming in that prism, such as a failure to identify a particular form of risk, will affect all who rely on it.51 Financial accounting protocols, such as those mandated by global and local accounting standards are another.52 In other cases the correlated behaviour does not operate directly but rather indirectly through normative pressure. For example the requirement that all RSE licensees have policies and procedures to ensure that persons with responsibility (including all directors and

49 Donald and Nicholls (n 28); Yates and Montagu, The Law of Global Custody (4th edn, Bloomsbury Professional 2013) at [3.13].


officers) for the fund be ‘fit and proper’ \(^{53}\) tends to encourage them to seek relevant education from one of what is, in Australia, a small number of sources, with a consequent reduction in cognitive diversity in the key decision nodes in the system.

Attention to the nature of the links constituting the superannuation system is therefore clearly important. The findings of research into banking system crises are salutary because they highlight the complex way in which local risk can propagate (or not) across a system. Importantly, however, the nature of the links in the banking system are different to those in the superannuation system (and pension systems around the world). With this qualitative description of the private law arrangements that constitute the Australian superannuation system as background, it is apposite now to consider how the system is regulated before returning to the core question of this article, the implications for regulators of the complex institutional interlinkages within the Australian superannuation system.

**PRUDENTIAL REGULATION OF THE AUSTRALIAN SUPERANNUATION SYSTEM**

Financial system regulation in Australia is organized under the Twin Peaks model. Market conduct regulation is overseen by the Australian Securities and Investment Commission (ASIC). Prudential supervision of the entities involved is overseen by the APRA. \(^{54}\) Most of the activities, and the largest of the entities, involved in the superannuation industry are subject to these regimes. \(^{55}\) It is the second of these, the regime of prudential regulation applied to superannuation entities, which is of primary interest in this article.

APRA’s powers derive from the Australian Prudential Regulation Authority Act 1998 (Cth) (‘APRA Act’). Section 8 of that Act empowers APRA to regulate:

‘bodies in the financial sector in accordance with other laws of the Commonwealth that provide for prudential regulation or for retirement income standards’.

Section 8(2) adds an important, but often under-estimated dimension to this role. It provides that:

‘In performing and exercising its functions and powers, APRA is to balance the objectives of financial safety and efficiency, competition, contestability and competitive neutrality and, in balancing these objectives, is to promote financial system stability in Australia.’

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54 Hazel Bateman, ‘Regulation of Australian Superannuation’ (2003) 36 Australian Economic Review 118. For an account of the application of the Twin Peaks model to the Australian banking system, with which the superannuation system necessarily overlaps, see Prudence Weaver, ‘Can too many Regulators be too much of a Good Thing?’ (2011) 22 Journal of Banking and Finance Law and Practice 201.

55 The Commonwealth taxation system is a third regime, albeit not strictly regulatory, applied to the superannuation system and its constituents. For a description see Hazel Bateman and Geoffrey Kingston, ‘Superannuation and Personal Income Tax Reform’ (2007) Australian Tax Forum 135. The taxation system is not relevant to the issues under consideration in this article.
The SIS Act is the most important of the ‘laws of the Commonwealth’ giving form to APRA’s mandate with respect to the superannuation system. That piece of legislation, now grown to almost 600 sections, establishes the focus of regulation as being the trustee of each superannuation fund. This is consistent with APRA’s stated mission, which is to:

‘establish and enforce prudential standards and practices designed to ensure that, under all reasonable circumstances, financial promises made by the institutions APRA supervises are met within a stable, efficient and competitive financial system’.56

To that end, the SIS Act imposes a variety of standards on the trustees in the system.57 It also empowers APRA to determine written Prudential Standards relating to ‘prudential matters’ affecting trustees and their connected entities.58 Prudential Standards are legislative instruments that, once tabled in Parliament, have the force of law. This means that APRA has, for all practical purposes, powers very close to legislative powers to impose upon bodies in the financial sector rules it deems necessary to ensure the prudential integrity of the system. A ‘prudential matter’ is defined to be a matter relating to the conduct of a trustee or a connected entity required to protect the interests of the beneficiaries of the fund or meet the reasonable expectations of those beneficiaries, or to avoid instability in the financial system.59 The question of how to define the ‘reasonable expectations’ of the beneficiaries in a superannuation context remains moot60 but what is clear is that an entity’s capacity to meet those expectations in an outsourced business model depends not just on the entity’s own characteristics but on the capacity and willingness of those outsourced service providers to play their role. It is also unclear whether the reference in both section 8(2) of the APRA Act and section 34C(4) of the SIS Act to ‘instability’ in Australia’s financial system refers to the types of market pricing volatility that would ordinarily be the target of macro-prudential supervision, or whether it might extend to instability in the structure and functioning of the superannuation system (being an integral part of Australia’s financial system).

This is important because many of the entities involved in the administration of the superannuation system are not customarily regarded as being formally within APRA’s supervisory jurisdiction. Examples include member benefit administrators, asset consultants and investment managers. A number of others, including custodians,61 are within APRA’s jurisdiction by virtue of their membership of a banking or

57 See for instance the requirements in pts 6, 9, and 12 of the SIS Act.
58 s 34A SIS Act.
59 s 34C(4) SIS Act.
61 See Donald and Nicholls (n 28).
insurance group. The SIS Act attempts to overcome this jurisdictional hurdle by regulating the interactions between trustees and those other entities not formally within the APRA’s jurisdiction. So for instance section 123 of the SIS Act imposes minimum requirements on organizations seeking to be appointed as custodian to a superannuation fund and section 124 requires that all investment managers must be appointed in writing. This regulatory strategy not only addresses the jurisdictional issue, it isolates and privileges the trustee as the focal point for APRA’s supervisory activities, which, from a pragmatic perspective, enables APRA to focus its supervisory activities on a relatively small, and observable, set of entities subject to its licensing regime. This approach deliberately dovetails with ASIC’s market conduct regulation, and in particular the provisions in Parts 7.6 and 7.8 of the Corporations Act relating to the grant of an Australian Financial Services Licence.

APRA represents that its approach to prudential regulation in respect of the superannuation system conforms to its approach in the banking and insurance sectors for which it is also responsible.62 In particular it describes its approach to supervision and regulation as risk-based, outcomes-focussed and principles-based.63 Its regulatory ‘risk appetite’ is expressly directed towards limiting (though not eliminating)64 the systemic risks associated with financial promises that are not met. To that end it employs two partially parameterized65 frameworks, the Probability and Impact Rating System (PAIRS)66 and Supervisory Oversight and Response System (SOARS)67 to inform and guide its supervisory priorities. The first of these, PAIRS, relies on an assessment by individual supervisors of each entity in respect of a set of structural and other characteristics deemed by APRA68 to be relevant to the likelihood of the entity defaulting on its financial promises. This probability assessment is supplemented by an assessment of impact that is sensitive to the assets associated with the entity. The salient characteristics considered by PAIRS span the risks inherent in the business undertaken by the entity, the processes of management and control employed within the entity to identify, measure, monitor and control those risks, and the capital available to absorb unexpected losses.69 Within each of these broad areas of

64 The approach is however not designed to pursue a ‘zero-failure’ objective; APRA (n 56) 5. Indeed the Government’s Statement of Expectation in respect of APRA expressly recognises that:

65 They are only partially parameterized in the sense that key attributes of each entity are assigned values according to supervisor assessments, which values are then manipulated by the relevant analytical system.
68 The assessment in respect of the banking sector, in particular, is informed by the history of credit ratings and actual defaults. The absence of such a historical record in respect of the superannuation system means that this aspect of the model in respect of superannuation is more impressionistic than in other sectors.
69 APRA (n 56) 9. See further Black (n 63) 10–15.
attention, supervisors provide a granular assessment that is sensitive to the precise circumstances of the particular entity. SOARS relies on output from PAIRS to suggest an appropriate regulatory response. Those responses span a spectrum from normal supervision, to more intense oversight, to mandated improvement and, ultimately to mandated restructuring.\footnote{ibid 5. See further ibid 16–17.} Although both systems were designed with insurance and banking in mind, they are now applied, albeit in a looser, adapted form, to the superannuation system.

Relevantly in the current context, for the most part APRA’s supervisory activities treat individual entities in the system as independent. Both PAIRS and SOARS treat entities as distinct and do not regard systemic criticality (as distinct from size) as a criterion for intervention or escalation of supervisory activity. Also, although APRA has a small team of ‘industry analysts’, one of whom is assigned to the superannuation sector, and a dedicated Policy and Statistics team, the overwhelming majority of APRA’s resources are organized into supervisory teams responsible for a small list of institutions and the current reporting protocols do not elicit the types of information that facilitate close analysis of the sorts of linkages and shared exposures described in this article.

This is not to suggest that APRA is insensitive to the potential for systemic risk in the superannuation system. APRA’s attention to outsourcing risk\footnote{APRA, \textit{Prudential Standard SPS 231: Outsourcing} (2012), <www.apra.gov.au/Super/PrudentialFramework/Documents/Final-SPS-231-Outsourcing-November-2012.pdf> accessed 17 June 2015.} and investment governance\footnote{APRA, \textit{Prudential Standard SPS 530: Investment Governance} (2013) <www.apra.gov.au/Super/PrudentialFramework/Documents/Final-SPS-530-Investment-Governance-July-2013.pdf> accessed 17 June 2015.} signals that it recognizes that the trust-law based legal architecture of the superannuation system means that risks need not stem from the failure of an entity that falls within its formal jurisdiction (a trustee for instance) but may arise from entities on which the trustee relies. Indeed APRA’s Supervision Blueprint expressly notes that:

‘A key part of APRA’s supervisory assessments are supervisory action plans for supervised institutions. While these focus on addressing the key risk areas for an institution, in some cases broader industry or process issues may be identified which also require action.’\footnote{APRA (n 56) 6.}

That said, Donald and Nicholls report\footnote{Donald and Nicholls (n 28) 35.} that APRA’s various interactions with trustees over 2008–09 in relation to the holding, valuation, and management of illiquid investments in the aftermath of the Global Financial Crisis (GFC) were the last time such thematic enquiries had a systemic character. Recent thematic enquiries conducted by APRA have focussed on more local risks, such as conflicts of interest\footnote{APRA, Letter to all RSE licensees, ‘Managing conflicts of interest in superannuation’ 19 March 2015, <www.apra.gov.au/Super/Publications/Documents/1503-Letter-to-RSE-licensees-Managing-conflicts-of-interest-in-superannuation.pdf> accessed 25 June 2015.} and funds’ insurance arrangements.
REGULATORY IMPLICATIONS

The Sections ‘Australia’s Superannuation ‘System’’, ‘The Institutional Structure of the Australian Superannuation System’, ‘The Types of Linkages and their Consequence for the Transmission of Risk’, and ‘Prudential Regulation of the Australian Superannuation System’ described the institutional structure of Australia’s superannuation system from a range of perspectives. Little of what was described there would come as a surprise to those acquainted with the system, but what has not previously been considered is the way in which the features of the system identified by each of those descriptions, considered together, illuminate systemic vulnerabilities and hence regulatory challenges.

The descriptions and analysis presented above represent a challenge to APRA’s current approach to regulating the superannuation system on at least five key fronts.

The first is that criticality for the system may emerge from local disturbances that of themselves appear immaterial. Specifically, cascades and other forms of contagion could occur notwithstanding that the individual entities, viewed in isolation, satisfy standard prudential measures. This is particularly true of informational dependencies which may quickly propagate disturbances widely throughout the system. This possibility should cause APRA to revisit the way in which their risk appetite is understood. APRA’s efforts currently appear to focus on limiting the risks of local failure, an approach that is readily understood and accepted when the regulated population is highly concentrated and the ‘Too Big to Fail’ phenomenon looms large, as it does in most of the sectors APRA is required to regulate such as retail banking and life, general and health insurance. However, a widely dispersed, but functionally interconnected, system such as the superannuation system demands a different risk mindset. The mindset also needs to be different from that which would be optimal in a highly dispersed, but independent, system. The occurrence of a particular failure in a highly fragmented system with few linkages and interdependencies, however regrettable, may well be something that is deemed acceptable because the costs of eliminating the chance of all such local failures may outweigh the risk it poses to the system overall. That assessment may however change if the failure occurs at a crucial node in a system with many linkages and interdependencies, or if the failure is likely to propagate across the linkages in a way that broadens the impact of the initial failure. This article has identified a number of such potential nodes, most particularly in the fund custodian and member benefit administrator sectors of the system.

The second challenge is that notwithstanding the statement (reported above) in APRA’s Supervision Blueprint that APRA does have regard for ‘broader industry or process issues’, it is clear that APRA still regards systemic issues in the superannuation system as a matter for ad hoc enquiry and not continuous attention. APRA may therefore need to re-calibrate its regulatory stance with respect to individual entities in ways that reflect those entities’ importance to the system as a whole, as it has done in recent years in the banking sector. In particular, systems such as PAIRS may need to have regard not just for the size of the entity, but also its multi-faceted connections with the rest of...
the system. The same may be said for the level of regulatory capital deemed appropriate for different prudentially-regulated entities. The descriptions presented above suggest very strongly that conventional measures of scale, including balance sheet measures, may not capture the criticality of a particular entity to the system as a whole. The number of customers and the volume of transactions may also be crucial, as may the presence of conditioning factors (such as limited liability, indemnity insurance and indemnity clauses) that create non-linear dynamics in the transmission of risk across the system. That is not to underestimate the complexity and magnitude of such a task.

The third challenge is that APRA may in the future have to justify regulatory intervention in respect of an entity based not on characteristics or conduct peculiar to the entity seen in isolation, but on a more ‘connected’ basis. APRA may have to intervene, formally through its enforcement powers or informally as part of its ongoing supervision of entities, in circumstances where there has been no ‘wrongdoing’ on the part of the entity, as such. It may simply be that the entity’s conduct, or more problematically, the environmental context surrounding the entity, has an undesirable systemic consequence. This in some ways resembles the mode of regulation sometimes required of competition regulators, such as the Australian Competition and Consumer Commission (ACCC), when the need for regulatory intervention is inspired by changes to a market that are unrelated (at least directly) to the entity or entities left occupying an unacceptably dominant position.\footnote{This would represent a challenge to traditional modes of financial regulation, albeit one becoming more familiar in the regulation of global banking where the identification designation of systemically important entities is starting to have regulatory consequences.}

The fourth challenge is that many of the critical nodes in the system currently lie outside APRA’s regulatory jurisdiction. Although APRA has jurisdiction with respect to superannuation funds and their trustees, as well as to the banks and insurance companies with which they interact, key service providers such as member benefit administrators and investment managers lie formally outside APRA’s jurisdiction. As we have seen, failures of these service providers, or disturbances caused by them, could in certain, not entirely fanciful, circumstances represent a material systemic risk. It is of course also true that even within sectors formally within APRA’s jurisdiction it can be difficult to ensure that sufficient supervisory pressure is placed on those subsidiaries and processes, such as custodians,\footnote{Donald and Nicholls (n 28).} within large financial conglomerates that are critical to the superannuation system.

Finally we should note that the structure of an industry and the regulatory strategy applied to it are certainly not independent. As noted above, the advent of RSE licensing dramatically reduced the number of superannuation funds in Australia. However, the number of regulated entities in the superannuation system remains greater, and the market concentration less, than is the case in other APRA-regulated sectors. This places great pressure on APRA’s preferred mode of supervision, which as we have seen is informal, contextual and privately negotiated. That mode of operating is far easier to implement when the agency is responsible for supervising a very
small number of market-dominating entities than when there is a long list of material entities to supervise. So although the analysis in this article does not provide evidence that a concentrated system (in which there is intense supervisory focus on a few entities) is more or less prone to systemic failure than a more widely dispersed one, it does caution against complacency in regards the latter. If APRA does not have the resources to deploy its usual supervisory approach across the wide range of entities present in the superannuation system (which seems inevitable) it may at the very least need to consider more targeted attention to those nodes that do appear to be systemically significant on the basis of their links to other entities. Otherwise there is a risk that a regulatory strategy designed for a specific set of circumstances (including market concentration and simple, contract-based linkages) could fail when applied to a quite different set of circumstances (such as those pertaining in the superannuation sector). That does of course assume that it is the regulator which ought to adapt to the circumstances, and not the other way around.79

These challenges are not insurmountable. Some, such as the adjustments to the PAIRS system, could be achieved through adjustment and re-calibration of APRA’s internal models and operational structure. Others, such as the limits of APRA’s jurisdictional coverage of the system may require legislative reform. Naturally, the costs and benefits of such changes need to be weighed and then compared against the wide range of other potential adjustments and reforms with a claim for attention. The risks should not however be disregarded or forgotten. Nor should they be under-estimated. The analysis in this article does not suggest that local failures are more or less likely; rather it suggests that we may be materially under-estimating the possibility that local failures, which are a near certainty given the current regulatory risk appetite, will have a systemic impact. The consequences for Australia’s economy and its financial markets of systemic failure in the superannuation system are too great to permit risks such as those identified and discussed in this article to go unmonitored and unaddressed by the regulatory regime.

CONCLUDING COMMENTS

The presence of complex interactions between the entities involved in Australia’s superannuation system ought not to be a great surprise. The superannuation system is in many ways a microcosm of the global financial system of which, from a functional perspective, it is a part. The superannuation system, and many pension systems around the world, does however gain added complexity because of the web of differentiated legal relations that together constitute the decentralized operating model employed by most funds in the system. This article has highlighted, and started to explore, the consequences of that complexity for systemic risk and for the regulatory regime applied to the system. It may inspire further examination, and perhaps even more sophisticated quantitative modelling, but it is clear on the basis of the analysis contained in this article, that the risks to systemic resilience are real and that they have nuances that will require tailored solutions from policy-makers and regulators.

79 In practice, of course, both adapt. The suggestion here is that we ought to be careful not to permit the regulator too much scope to craft the system in its own image. There are a range of policy considerations that demand respect and attention beyond simply regulatory convenience.