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**Improving the Regulation and Supervision of Pension Funds:
Are There Lessons From the Banking Sector?**

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**IMPROVING THE REGULATION AND SUPERVISION
OF PENSION FUNDS:
ARE THERE LESSONS FROM THE BANKING SECTOR?**

by

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1. Introduction

The financial problems faced by PAYG schemes around the world has led several countries to curtail public pension benefits and promote supplementary private pension provision, either by encouraging a voluntary (third) pillar through tax incentives, and/or by introducing a mandatory (second) pillar. The desire to achieve a high rate of coverage in private pension provision has led an increasing number of countries to introduce a second and mandatory pillar, not only in Latin America, but also in Europe. Within the next decades, the mandatory and voluntary private pillars are expected to provide a significant share of retirement income in many countries. As a result, there has been a growing interest in analyzing the institutional and regulatory framework of the pension industry, and assessing whether the industry will be able to meet the expectations of workers and policy makers.

In analyzing the regulatory framework for the pension industry, it is important to identify the types of risks that the industry is exposed to, assess whether the regulatory framework in most countries is prepared to cope with these risks, and whether there is room for further improvements. In examining these questions, it may prove useful to ascertain whether there are lessons to be learned from other areas of the financial sector, especially from the banking sector.

There are at least two major factors justifying a comparison of the regulatory frameworks for banks and pensions, and identifying possible lessons from the former to the latter. First, the regulatory framework of the banking sector has been extensively examined, more so than any other area of the financial system, and some important issues identified in this sector may be applicable to pensions. Second, banking regulation has evolved continuously over the recent decades, in good part in response to episodes of banking crisis and failures. The experience that bank regulators have acquired, both in attempting to prevent crisis and dealing with actual crisis episodes may be relevant to pension regulators.

The main objective of this paper is to review the regulatory framework for pension funds, and examine whether there is scope for improvements in pension regulation, particularly in light of regulatory and supervisory developments in the banking industry. The paper is structured as follows. The second section summarizes the literature on banking regulation and supervision, identifying the areas of consensus and the trends in regulation and supervision across countries. The third section summarizes the literature on the regulation of pension systems. The fourth section examines the scope for improvements in pension regulation, identifying possible lessons from the banking sector to the pension industry. The fifth section provides a summary and concludes.

2. Regulation and Supervision of the Banking Sector

2.1. The Challenges of Bank Regulation

Banks are at the center stage of business and economic activity in any country. They provide essential financial services to the economy, mobilizing savings and allocating scarce resources to productive uses. Unless specifically prohibited to do so by national laws, banks have also become major players in capital market activities, often through the formation of financial conglomerates. Moreover, banks provide also the kernel of national payment systems and are the major conduit of monetary policy. Promoting a healthy and efficient banking system has been, therefore, a crucial policy goal of Government and society at large.

The banking sector has always received more policy attention than other sectors of the financial system. This has been due to the dominant position of banks in the financial system, the particular structure of their assets and liabilities, and the huge leverage with which banks operate. Banking activities typically involve the transformation of short-term liabilities into longer-term assets (loans) that are difficult to value and monitor. As a result of these activities, banks are subject to a variety of risks, such as credit, liquidity, interest rate, and currency risks. Banks are also subject to inside abuse, fraud, and other agency risks. The high leverage in banking and the structure of bank

liabilities, imply together a substantial degree of exposure of capital to these risks, and the possibility of contagion effects triggering a chain of bank runs and failures.

The specter of massive bank runs and failures with disruptive consequences for economic activity, and the perception that social costs of failures may well exceed private costs, has traditionally led to a great degree of intervention in the banking system. In addition to the existence of central banks providing lending of last resort, Governments have tried to reduce the probability of bank runs by introducing explicit deposit insurance. For example, the US insures deposits up to US\$ 100,000 and the EU countries have to comply with a directive imposing a minimum compensation of EURO 20,000 per depositor, and a large number of other countries today also provide an explicit insurance scheme (Garcia (1998)). In several occasions, both the US and the EU countries have also bailed out bank depositors (particularly of banks deemed as too large to fail) on an *ad hoc* basis, in excess of the statutory insurance ceilings, and other countries have frequently followed the same policy.

Deposit insurance may reduce drastically the likelihood of bank runs, but is also known to generate moral hazard, aggravating considerably the principal-agent problem in banking. Over the recent decades, there has been an extensive discussion on the best strategy to deal with moral hazard and reduce the incentives for banks to undertake excessive risks. More radical proposals include the complete elimination of deposit insurance and/or the establishment of “narrow” banks, accompanied by the deregulation of the financial sector. These proposals are based on the view that the risks of systemic runs and failures affecting sound banks have been largely over-estimated, and that deposit insurance and financial regulation have actually introduced more instability.¹

These more radical proposals have not been adopted anywhere, because of the perception that the negative externalities associated with bank runs are serious enough to justify the maintenance of some deposit insurance, and that the “narrow” bank model would introduce other problems (e.g. a less efficient payments system, less economies of scope in banking), while also failing to solve adequately the problem of vulnerability to bank runs².

The set of measures that have been proposed to enhance prudent banking in the presence of deposit insurance, both in the academic literature and by international and national regulatory agencies, can be grouped into four broad classes. The first involves measures designed to reduce the scope of insurance and improve its pricing. The second involves a great variety of quantitative regulations designed to ensure minimum levels of capital, limit risk-concentrations, reduce regulatory forbearance, and foster transparent financial reporting by banks. The third involves qualitative standards designed to enhance the accountability of bank management, improve banks’ capacity to manage risk and strengthen bank governance more generally. The fourth involves the development of a strong and pro-active supervisory capacity.³

¹ Dowd (1996) proposes the adoption of “free banking”, involving not only the elimination of deposit insurance and the complete deregulation of the financial sector, but also the abolishment of central banks. Benston and Kaufman (1996) basically endorse Dowd’s views on deposit insurance and regulation, but stop short of recommending its elimination, and in general provide a less radical discussion of the subject. Discussions of narrow banking can be found, e.g., in Litan (1987), Guttentag and Herring (1988), Pierce (1983), and White (1989).

² A summary of the criticism of the narrow banking model can be found in Randall (1993).

³ A comprehensive survey of the voluminous literature on banking regulation is out of the scope of this paper. This section summarizes the main issues very briefly, sometimes at the cost of oversimplification. Comprehensive analysis of financial regulation may be found, e.g., in Benston and Kaufman (1988), Benston et al (1989), Federal Reserve Bank of New York (1998); Goodhart et al (1998), Llewellyn (1999), Calomiris (1998), Bhattacharia et al (1998), Estrella (1998), and Randall (1993). This short list probably excludes important contributions to the literature.

Most countries have decided to deal with the moral hazard problem and enhance prudent banking through a combination of these four inter-related sets of measures. There is still no universal consensus among regulators and academics on all the elements of the optimal policy menu, and differences in the regulatory and supervisory framework of different countries still remain. However, it is also fair to say that most developed countries have advanced significantly in these four broad areas, and also that there has been some progress in harmonizing the regulatory framework across borders. The 1988 international agreement on capital adequacy requirements sponsored by the Basle Committee, the more recently proposed Core Principles for Bank Supervision (Basle Committee (1997)), and the numerous EU directives regulating the operation of banks in the common market, are a clear evidence of this ongoing progress.

2.2. *Reforming Deposit Insurance*

Various measures have been proposed to offset directly the moral hazard effects of deposit insurance, by enhancing incentives for more market monitoring of banks and improving market discipline. These measures include capping the statutory insurance limits at lower levels, introducing more co-insurance, making more use of market-priced subordinated debt, ensuring extensive disclosure of the banks' financial conditions, and making insurance fees more risk-based.⁴ Ensuring a greater role for market-based subordinated debt is a popular proposal, and this instrument is already allowed in the computation of capital adequacy ratios (as tier two capital).⁵ Also, an increasing number of countries have started costing the price of the deposit insurance premium according to the risks of failure posed by each bank's condition. Within the OECD, these countries include the US, Canada, Sweden, Norway, Finland, Portugal, and Italy⁶.

2.3. *Quantitative Prudential Regulations*

Quantitative prudential regulations are those rules and standards that aim at preserving a buffer of tangible capital to absorb potential losses emanating from risks. These regulations also intend to diversify the risks that banks assume and ensure minimum levels of liquid and safe assets. The most widely adopted regulations include:

- Minimum entry and capital adequacy rules that reflect the risks that banks undertake;
- Appropriate limits on risk concentrations with individual and groups of related borrowers;
- Limits on other types of financial risk concentrations in investment and trading activities;
- Asset classification and provisioning rules establishing the fair value of the bank's assets, contingencies, collateral, and designed to disclose the real value of the bank's capital;
- Minimum requirements for holdings of liquid assets.

In addition to these core regulations, the regulatory framework of some countries has been extended to include rules limiting the scope for regulatory forbearance, as the discretion of supervisors to allow temporary divergences from quantitative regulations can delay the resolution of failing banks and exacerbate the costs of failures, especially when supervisors are subject to intense political interference. These rules are designed to trigger prompt action by supervisors, and typically include thresholds on the level of the capital adequacy ratio, with each threshold triggering a set of

⁴The literature on deposit insurance and the number of proposals for improvements in insurance design are equally voluminous. See, e.g., White (1989), Kupiec and O'Brien (1998), Dotsey and Kuprianov (1990), Kopcke (1995), Benston (1993), FDIC (1998), Thomson (1990), Rolnick (1993), Kuprianov and Mengle (1989), and Garcia (1998).

⁵Argentina's central bank has recently required banks to place subordinated debt and obtain ratings as a test for market perception.

⁶Garcia (1998) provides a comparative analysis of deposit insurance schemes and reports that 11 countries already risk-adjust their premiums. See also FDIC (1998), and CDIC (1998).

predetermined actions, leading ultimately to the closure and resolution of problem banks before their capital declines to negative levels.

2.4. *Qualitative Prudential Regulation*

There is a growing perception that even the best quantitative regulations are not sufficient to avoid the recurrence of crisis. First, prudential ratios are not sufficiently related to the conditions of individual institutions and the realities of some countries (the “one size fits all” problem). Second, the quantitative regulations are not really a substitute for good bank governance. Third, the rules adopted are frequently inspected ex-post for compliance, sometimes without rigorous enforcement, rather than monitored ex-ante to prevent the build-up of risk concentrations. In addition, quantitative regulations do not reveal on time the concentration of risk that frequently happens during an expansionary cycle (due to the herd behavior of bankers).⁷ The quality of the strategies to manage risks are crucial to mitigate failures in the downturn phase of the cycle.

Although quantitative prudential regulations remain an essential component of the regulatory framework for banks, there is also a growing recognition of the need for the regulatory framework to promote better bank governance and the internal management of risks. Thus, there is a growing awareness that quantitative regulations must be complemented by a set of qualitative rules specifying the rights of shareholders, the tasks and responsibilities of boards and senior management, the external and internal auditing functions, and the adoption of mechanisms to manage the most fundamental types of risks. These qualitative standards intend to place the primary responsibility for compliance and supervision where it belongs: the banks themselves or, more concretely, their boards, external auditors, and shareholders. The standards should provide for an enforceable framework of incentives to promote prudent behavior more generally speaking--not just quantitative rules for capital and risk diversification⁸.

Therefore, the regulatory framework for banking should expand from the traditional quantitative regulations to include qualitative standards such as:

- Rules regarding the role and responsibilities of boards of directors to: select, oversee, and dismiss senior managers; ensure that managers operate appropriate risk management techniques; review bank performance; verify independently the accuracy of information and the efficiency of risk controls; and ensure the compliance with laws and regulations. To be effective, these responsibilities have to be legally enforceable.
- Requirements for boards of directors to promote transparency and accountability, to adopt an appropriate code of conduct, to disclose and limit the operations that the bank may enter with related parties, and to prohibit self-dealing.
- Appropriate mechanisms to manage the various risks (credit, liquidity, market, interest rate), the organization of control structures ensuring that exceptions and errors are promptly reported; and the operation of an internal audit function reporting directly to the board and ensuring the compliance with prudential regulations.
- Appropriate standards for information and accounting systems formulating the minimum requirements for a bank's records and accounts.

Internal and external audits are key elements of the corporate governance of banks. They provide essential services to banks' senior management, boards, and shareholders, by assessing the integrity of financial reporting, and the efficiency of control systems. External auditing is also

⁷ Randall (1993).

⁸ CDIC (1998).

important for supervision, since it can provide a first level of assessment of the integrity of accounts, compliance with the regulations, and the efficiency of controls.

Despite the potential value of auditing in corporate governance, external auditors have frequently failed to identify and report on time the accumulation of problems. Auditors face conflicts of interest that preclude them to report objectively on prospective solvency (the bank pays for the audit, and management can frequently remove the auditor without the approval of shareholders and/or supervisors). The regulatory framework should, therefore, strengthen auditors' independence and responsibilities towards shareholders and supervisors. Different measures that have been adopted for this purpose include: obligatory rotation of external auditors; obligatory reporting to independent directors' audit committees; obligatory assessment of the integrity of controls and systems; *ad-hoc* changes to audit programs to focus on asset valuation and income recognition; limits to consulting services, and previous shareholder and supervisory approval to the removal of auditors.

Ideally, the regulatory framework should not only ensure that the external audit function is an effective component of corporate governance, but also enable it to become an effective tool for bank supervision. To this end, bank supervisors must be able to influence the audit programs and have full access to their outcomes and working papers. Moreover, auditors must have a reporting responsibility to supervisors. Some developed countries have gone even further, essentially replacing external audits for on-site examinations.

In banking, there is a consensus that external audit is an essential component of corporate governance, and that it can be an effective tool of bank supervision. However, there is no consensus on whether external audit can be strengthened to a point where it can replace entirely one of the critical elements of supervision—on-site examinations. Although the experience of some developed countries in this area has been positive, it would be dangerous to extrapolate this experience to other countries, particularly developing countries. For one, the legal responsibilities of auditors are neither clear nor enforceable in many countries. Also, the profession is not sufficiently developed in many of these countries. Finally, the profession frequently rejects further and expanded responsibilities that conflict with their perceived and more traditional role.

In general terms, countries that have experienced episodes of banking crisis do not rely on external audits as the primary instrument of on-site supervision, as there is a general perception that auditors failed to warn on time. Instead, these countries try to strengthen direct on-site examinations, while also giving examiners more powers over external auditing procedures.

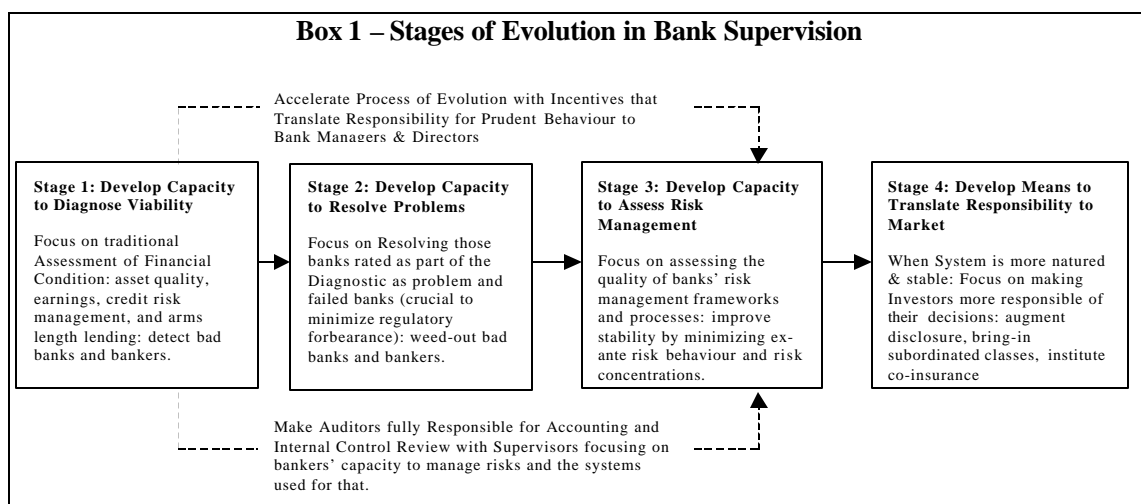
2.5. *Bank Supervision: Basic Strategy and Objectives*

Despite the progressive convergence of prudential regulations in some concrete areas, one can still observe marked differences on the approach and organization of bank supervision across countries. This is due to the fact that supervisory arrangements are heavily dependent on historic, social and institutional arrangements particular to a country. The structure and quality of supervision is partly a developmental problem—the limited supervisory capacity in most developing countries reflects the lack of more general institutional development. However, there are other fundamental differences as well, resulting from different legal backgrounds and country-specific experiences with financial crisis—bank supervision tends to become much more pro-active and involved in failure resolution in the aftermath of severe crisis.

At the risk of oversimplification, one can identify a four-stage evolutionary process characterizing the development of bank supervision. As shown in Box 1, the most basic stage consists in developing minimum capacity to assess compliance with quantitative regulations⁹. A

⁹ It should be noted that in less developed countries it is difficult to accomplish even this very basic task, due to the lack of resources and experienced supervisory staff.

fundamental departure from this mechanic form of supervision happens as a result of a severe banking crisis. The experience left by a crisis leads to a better understanding by Government and society of the importance of the role of supervision, with more willingness to grant supervisors the power and the resources to minimize the probability of future crisis.

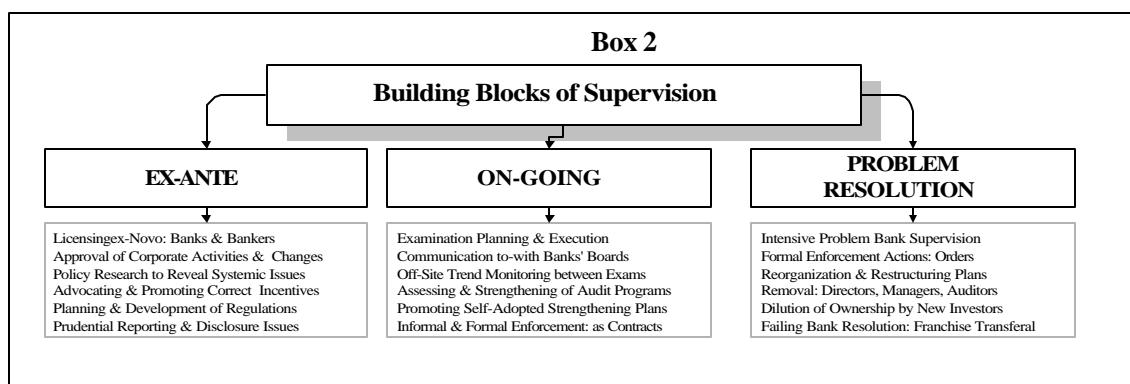


The second stage is usually characterized by a more interventionist approach and concentration of power and responsibilities in the supervisor agency. During this stage, supervisors are more actively involved in problem and failure resolution. Finally, the last stages follows an increasing understanding by governments and supervisors that a stable and efficient banking system needs to have prudent bankers following best standards of business and financial practice. It is then that the regulatory framework and the supervisory approach mature and shift to a more qualitative and broad-based approach: that of providing better incentives for prudent banking and redistributing risk and responsibilities to all market players.¹⁰

It is becoming clear in many developed countries that bank supervision should not restrict its role to ensuring compliance with risk diversification, capital adequacy, and other traditional quantitative indicators. The role of bank supervision is leaning more and more towards assessing the "attitude and ability of bankers" to identify and manage risk, and transferring as much responsibility as possible to directors and senior management (and to their external auditors) for banking prudently. If managers have better incentives and legal responsibilities to operate their banks properly (overseen by owners and creditors), the burden of achieving stability is more evenly distributed, instead of being entirely plotted on the supervisor's shoulders.

¹⁰ For example, the FED's Risk-Focus; the OCC's Supervision by Risk; and the FSA's RATE approach.

Today, most advanced supervisory agencies operate under a risk focus approach whose emphasis is double: strengthen the ability of each bank to manage and absorb risks, and anticipate the accumulation of risk in the system. The activities of those agencies are formalized in a communicated supervisory strategy that spells out the minimum requirements for managing risks that are expected to be followed in practice. Those agencies allocate supervisory resources in a graduated manner to the problems detected, with the aim of allocating more resources to the areas of greatest risk, and



correcting negative trends before they become unmanageable and too costly to resolve.¹¹

2.6. *The Building Blocks of Bank Supervision*

The Basle Committee has proposed structuring the supervisory function into three basic building blocks: licensing or ex-ante supervision, on-going supervision, and enforcement and resolution procedures, or ex-post supervision¹². As shown in Box 2, these building blocks are clearly integrated, although countries may need to put more emphasis in one of these building blocks depending on their specific conditions and stages of development.

2.7. *Ex-ante Supervision: The Licensing Function*

Licensing plays an important role in ensuring the viability of new banks and the integrity and fitness of those who will control and manage them. The licensing function should not be restricted simply to providing licenses based on certain criteria, but also be empowered to evaluate and authorize all major changes in the original license granted. This should embrace: significant changes in the control of institutions; additions to the catalog of permissible activities; appointment of directors, senior managers, and statutory auditors; mergers and acquisitions; domestic and international expansion; changes in the composition of capital; and related party transactions.

The original license granted should be provisional, and maintained only as far as the bank fulfills the conditions dictated by the law or agreed with the supervisor. The conditions set forth in the license would bring the original charter closer to a form of "narrow banking". It should contain and update periodically targets for institutional development, quantitative risk limits, and additional levels of capital adequacy above the minimum ratio.

This approach to licensing would serve to anchor a system of regulatory incentives that promotes responsibility by bankers rather than just compliance with quantitative regulations. As those in charge of on-going supervision evaluate the progress in implementing the original targets agreed with a bank's board, there should be an agreement to strengthen or liberalize the conditions imposed to a particular bank. This approach should serve to establish contractual targets agreed with

¹¹ Estrella (1998), and Foot (1999).

¹² Basle Committee (1997).

directors and senior management for a concrete bank to strengthen its institutional processes and risk management framework.

2.8. *On-Going Supervision*

While the process for on-going supervision varies from country to country, supervisors use several methods or tools for such purposes, including: on-site examination, off-site surveillance, contacts with internal and external auditors, and interviews with senior management.

On-site examinations usually involve an assessment of asset quality, earnings, asset and liability management, liquidity, and the depth of management systems and controls. On-site examinations can take different forms, depending on the sophistication and experience of the supervisors and the degree of development in the banking system. In more sophisticated systems, supervisors go beyond simply determining banks' financial condition, to assess the manner in which banks manage risk.¹³ Thus, supervisors assess the effectiveness of the bank's internal controls and audit procedures, management information and risk management systems, in order to arrive to an overall evaluation of a given bank. Alternatively, supervisors may decide to rely in different degrees on the external and internal auditors of banks. In this case, supervisors must have full access to all the audit results, make sure that auditors are independent and capable, and that they follow adequate rules and procedures.

The basic objective of off-site surveillance is, in turn, to monitor the condition of individual banks, provide early identification of problems, and target scarce supervisory resources to areas or activities of greatest risk. An off-site surveillance function intends to augment the power of the on-site supervision process and provides an on-going tool to evaluate financial performance between examinations. Off-site surveillance systems should be used as complements to on-site supervision, not as substitutes, and are highly dependent on the quality of the reported information. Facts crucial for the supervisory process, such as loan portfolio strategy, the quality of loans, or the bank's internal policies and procedures, can only be effectively evaluated through on-site supervision.

Management meetings (interviews with top bank managers) are also used by bank supervisors to verify how well the business is doing, what is management's basic strategy, and how well policy is implemented. In more sophisticated systems, management interviews tend to replace parts of the on-site examination process.

Finally, the enforcement function is crucial to the efficiency of the supervisory process. It requires clear powers and an objective legal framework to mitigate risks of litigation, overreaction, inaction, and interference. It is crucial to promote the importance of this function within the organization of the supervisory agency, to help avoid that internal processes and external interference dilute its efficiency. Enforcement can be made more efficient by developing a pro-active communication approach aimed at encouraging bank directors and managers to remedy weaknesses detected, if necessary imposing sanctions and operational restrictions.

There are several ways to organize the different supervisory functions within a bank supervisory agency. Some agencies place on-site and off-site activities in two different departments, while other agencies combine all the on-going supervision activities under a single department, and distribute the supervised banks among internal units considering their perceived condition—problem or sound, large versus local. There is a growing effort to optimize the use of scarce supervisory resources, graduating the use of supervisory tools to the perceived risk profile of each bank (frequent examinations of problem banks, enhanced audit programs plus off-site for better rated ones).

2.9. *Ex-Post Supervision: The Intervention and Resolution Function*

¹³ Estrella (1998)

The speed in resolving problem banks is crucial to minimize the costs associated with failure. In several countries, handling failing banks is assigned to supervisors, which might not be always the most suitable arrangement. In others, the resolution is carried over by specialized agencies (Bank Resolution Agencies, or a Deposit Insurance Fund) that have their own organization and legal framework. Finally, there are other situations where the responsibility is assigned to ordinary courts. The latter might be the lesser efficient alternative for developing countries whose judicial systems do not work efficiently. The lack of a suitable mechanism and rules for failure resolution has often delayed and complicated closures.

Whether resolution is or not a formal responsibility of the supervisory agency, supervisors are usually involved in the resolution process, especially in the preliminary steps that precede the withdrawal of a bank license. It is a crucial responsibility of bank supervisors to minimize the impact that a bank failure might have on the depositors and the system as a whole.

For the purpose of minimizing costs, supervisors have to closely watch the capital position of each institution. Measuring the true capital position of a bank is not a straightforward task, because loan assessment is a subjective exercise. The problem of measuring capital is even more acute in emerging countries, which are subject to much greater volatility.¹⁴ Many supervisory agencies hold the view that a more reliable measurement of the banks' true capital can only be done by examining on site the quality of the loans, lending to related parties, and the degree of cosmetic accounting. There is also a growing awareness that the value of many bank assets usually falls once the decision to liquidate is taken, due to perverse market incentives and information asymmetries.

Accordingly, there is a growing recognition that supervisors should take action at much earlier point than when regulatory capital is depleted. As mentioned before, prompt action is assured in several regulatory frameworks by announcing publicly trigger levels in capital deterioration that indicate at which points the supervisor must intervene or impose conservatory measures. The use of intervention and resolution triggers is a mechanism designed to minimize regulatory forbearance due to political interference or inaction, and, ultimately, to minimize disruptions and the costs of bank closure.

2.10. The Legal Structure and Scope of the Supervision Agency

In many countries, lawmakers and the government have faced obstacles to grant the necessary powers and resources to banking supervision. Often, powers that are necessary to supervision (licensing, regulatory, enforcement, and closure powers) are limited or assigned to other areas of State administration. This results into institutional fragmentation and political interference that leads to inaction and excessive forbearance when measures are needed. In many countries, supervisory agencies are also unable to attract and retain qualified staff due to insufficient resources and low salary scales. The resulting problems of technical incompetence and corruption may also lead to extreme cases of regulatory forbearance.

There are a number of institutional and regulatory factors that may determine the effectiveness of a supervisory agency. The agency must be able to pay salaries that are not significantly lower than the salaries paid in the industry, if possible financed from an independent source of revenues (e.g. mandatory contributions). Decent salaries should be accompanied by a temporary banning on future employment in the industry.¹⁵ The supervision agency should have the proper regulatory and enforcement powers, preferably including the duty to act promptly according to well specified triggers, and should also have adequate protection against lawsuits.

¹⁴ Caprio and Honohan (1999) indicate that emerging countries have been subject to many more episodes of financial crisis, and that the average fiscal cost of banking crisis in these countries has been twice larger (as a share of GDP) than the average cost in developed countries.

¹⁵ Senior supervision officials in the US and the UK are banned from banking jobs for several months to reduce the likelihood of deferred compensation with poor incentives (Caprio and Honohan (1999)).

The particular location, legal status, and scope of banking supervision has been subject to considerable debate. It is frequently discussed whether bank supervision should be located inside or outside the central bank, what is the necessary and desirable degree of formal legal independence (particularly when it is located outside the central bank), and whether it should be formally integrated with other supervisory agencies, such as insurance and capital markets.

There is still no consensus on whether banking supervision should be located inside the central bank. Advocates of supervision inside the central bank point out the synergies between the monetary policy and regulatory functions, the advantages of the independent status of the central bank for the supervision function, and the economies of scale. The critics of this solution stress the potential conflicts of interest that may result from the concentration of functions. When the supervision agency is located outside the central bank, there is an awareness that it must be endowed with the necessary regulatory and enforcement powers, but again, there is no consensus on whether it should have the same status of legal independence usually enjoyed by central banks.

More recently, there has been a growing discussion as to whether the different supervisory agencies should be merged to form a single integrated supervision. Proponents of integrated supervision point out the increase in the number of financial conglomerates accompanied by the blurring of the boundaries between products, that make separate supervisions increasingly ineffective. Thus, the proponents for integrated supervision argue that an integrated agency can achieve much greater efficiency at supervision at a much lower cost (for both the supervisor and the supervised institutions), due to a number of factors, including: economies of scale and scope, a sharp reduction in the duplication of reporting requirements, more consistency in the treatment of different sectors, more capacity to solve conflicts, more accountability, and much more capacity to implement a risk-based supervision model (through which resources are allocated to the areas that place the highest risk). It is on the basis on these considerations that 10 countries have already adopted a full or partial integration of their supervisory agencies.¹⁶

Although it is generally recognized that the emergence of financial conglomerates and the blurring of differences across financial products require more co-ordination and sharing of information among supervisors, and possibly integration of some agencies and functions, there is less consensus as to whether full integration is required or even desirable. These alternative views stress that there remain major differences between banks and other financial institutions in the nature of their business, the structure of their assets and liabilities and the risks that they assume, and these differences justify a differentiated approach to regulation and supervision, although with all the appropriate co-ordination channels.¹⁷

3. The Regulation and Supervision of the Pension Industry

3.1. An Overview of the Structure of the Pension Industry

As mentioned before, the financial problems faced by most PAYG schemes around the world has led most Governments to reduce pension benefits and encourage supplementary private pension provision. In a few notable exceptions, such as the US, private pension arrangements pre-date public social insurance systems. In the two last decades, several countries have taken an additional step and introduced a second and mandatory pillar. Within the next decades, the mandatory and voluntary

¹⁶ Briault (1999) provides a strong case for integrated supervision, and Taylor and Flemming (1999) provide a generally positive assessment of the experience with integrated supervision in Scandinavian countries.

¹⁷ Goodhart et al (1998) propose a system with six different regulators with clear mandates (institutions facing systemic risk such as banks, insurance, retail conduct of business, wholesale conduct of business, financial exchanges, and competition); Taylor (1995) proposes a simpler dual (twin peaks) model, comprising all prudential regulation in one agency and conduct of business rules in another.

private pillars are expected to provide a significant share of retirement income in many countries. As a result, there has been a growing interest in analyzing the institutional and regulatory framework of the pension industry, and assess whether the industry will be able to fulfill its expected role.

In examining the pension fund industry, it is important to have in mind the great variety of pension funds across countries, and even within one country. There are defined benefit (DB) and defined contribution (DC) funds; closed (occupational) and open funds; funds constituted as profit-oriented joint stock companies and funds constituted as non-profit mutuals; funds with and without boards, including a variety of different rules on board composition within the first group; and mandatory and voluntary funds. The existence of a great variety of funds is easily appreciated by realizing that there may be multiple combinations of these different characteristics.

The paper will place more emphasis in the analysis of DC funds, because there has been a general trend from DB to DC funds in most countries, and also because most of the new second pillars that have been introduced in the two last decades also operate on a DC basis. However, the paper will examine the different legal constructions of pension funds, as these differences have important implications for regulation and supervision.

3.2. *Governance Structures for Pension Funds*

In examining the governance structures of pension funds, it is useful to classify pension funds into four broad classes: (i) accounts in banks or insurance companies; (ii) participating endowment insurance funds; (iii) pension funds run by management companies; (iv) foundations/trusts/mutuals. Most private pension arrangements fall into one of these four broad classes, particularly into the last two classes. There are some additional arrangements, such as the system of book reserves, but these types of arrangements will not be examined, as they exist in a very limited number of countries and are generally considered as an unattractive option.

Accounts in banks or insurance companies are common in most developed countries. In these countries, insurance companies can run pension funds directly off their balance sheet, so that the fund member has an insurance contract providing their pension. Some countries allow banks to operate retirement savings accounts, which means pension assets are placed directly on the balance sheet of the bank. These funds are defined contribution and are treated as essentially another form of deposit, although several of them have additional restrictions, and performance obligations (e.g., a minimum rate of return). In some circumstances, the only distinction between pension accounts and other accounts is the tax status of the account, with contributions and earnings on pension accounts shielded from income taxes until the funds are withdrawn after retirement. Pension plan members are not represented in the boards of these institutions, unless they also happen to be their shareholders. They may be able to vote with their feet and change funds, although frequently subject to considerable restrictions and penalties. The quality of corporate governance and management in these cases depends fundamentally on the quality of the institutional and regulatory framework for insurance companies and banks. The lack of clear segregation of assets or financial product differentiation is a key issue when regulatory regimes seek to impose enhanced protections in recognition of the additional social purposes that distinguish retirement savings from other depositors and contract holders.

Participating endowment insurance funds are allowed in some OECD countries and constitute the third pillar in the Czech Republic. This type of fund is constructed as a separate, profit-oriented, joint stock company, with shareholders and plan participants. As in the case above, there is a board, but plan participants are not represented in the board, unless they also happen to be shareholders. Also, plan members may be able to vote with their feet and change funds, although usually subject to restrictions and penalties. The quality of governance and management depends on the legal and regulatory framework for joint stock companies in general, and for this type of fund in particular. This type of construction is more transparent than simple policies or accounts in insurance companies

and banks, as the fund is separately constituted. However, this type of fund also suffers from the problem of lack of asset segregation (between participants and shareholders).

Open funds without boards and run by a management company are the only permitted structure in most of Latin America. In other countries, this structure is permitted but is not the only structure. These funds operate essentially as mutual funds without voting rights. They are usually sponsored or effectively managed by parent entities engaged primarily in financial services. Their primary purpose is investment management and maintenance of individual accounts. Typically they invest directly their resources, making strategy and selection decisions in-house. They usually perform all individual account maintenance functions, arrange for the transfer of balances, and often serve as intermediaries in the purchase of annuity contracts. Participants are generally permitted to switch accounts among a limited set of companies, resulting in a “managed competition” type of market discipline. In some circumstances, they are permitted to underwrite annuities.

These funds are invariably defined contribution, but the regulatory framework frequently imposes some performance obligation on the asset manager. The quality of governance and management depends fundamentally on the legal and regulatory framework for management companies. Where the management company is a subsidiary of another financial institution (as is common in Latin America), then the financial institution will regard the pension fund as just one of its product offerings, and will market and manage it as such. This means that any problems in the parent institution will affect the pension fund, and the regulator needs to recognize this link. Fund members do not have voting rights, as there are no boards, and are expected to exert discipline by voting with their feet. Shifting is usually allowed with few, if any, restrictions and penalties.

One of the advantages of this type of construction, relative to the two described above, is much greater transparency and clear asset segregation, as the assets of the pension fund must be held separately from those of the management company. The main problem observed in most countries is the high pressure marketing techniques, high marketing costs, illegal selling practices, and excessive switching (Srinivas, Whitehouse and Yermo (1999), Vitas (1998), and Queiser (1998)). Regulations and supervisory activity have attempted to address these problems, but with only limited success.¹⁸

Foundation/Trusts/Mutuals with boards are very common in the OECD, and are usually occupational-based, but can also be open. Occupational plans are constituted as trusts or foundations, and are one of the main forms of pension provision in most developed countries. The board is legally responsible for administering the fund, but does not typically directly engage in management activities. These types of organizations are more characteristically constituted as an organizing nexus for members with some type of affiliation (an employer or trade union) with the assets of the fund separated from the sponsor, and management and administration undertaken through various contractual arrangements. When of sufficient size to be practical, some of the fund management activities may be undertaken in-house. Board members may be appointed by an employer, directly by the members or through a trade union, or by both employers and members.

Occupational plans can be either defined benefit or defined contribution. In DC funds, the employer's only obligation is to contribute specified amounts to the pension fund. Since the employer does not have additional financial obligations, he may exercise little diligence in seeking efficient fund management or in properly matching the investment strategies with the requirements associated with retirement savings. However, this principal/agent problem is usually mitigated by at least three factors. First, the senior management of the employer are usually members of the plan, and have a strong interest in seeing that it is well managed, because it includes their own retirement savings.

¹⁸ The two types of funds described above are also subject to high pressure marketing techniques leading to large marketing costs, despite the fact that switching is more restricted than in the case of open funds operated by a management company. Unfortunately, there are no reliable empirical studies comparing systematically the costs of these three types of funds.

Second, employers typically compete in the labor market offering a benefit package, and lose competitiveness if the value of the pension benefits offered is discounted in response to ineffectual management. Third, the boards of many occupational funds operating on a DC basis have split board representations (employers and employees), contributing to a better alignment of investment policies with the interests of plan members.

In DB funds, the employer normally guarantees the defined benefit, and also usually contributes to a general guaranty fund. This gives the employer a strong financial interest in the performance of the fund, because poor performance will increase the employer's costs. Whereas this built-in incentive for performance may be a positive feature of these plans, there are also a variety of problems associated with DB plans. These plans can be a significant source of rigidities in labor markets, as employers seek to bind valued workers with benefit formulas that disproportionately value longer period of employment. Guarantees can also create substantial moral hazard issues, particularly when the employer face significant liquidity or solvency problems. In such circumstances, the employer may undermine the funding status of the arrangement by promising future benefits in lieu of cash wages, and fail to restore the financial viability of the fund. More seriously, senior management may take their benefits out of the fund before the employer goes into liquidation. DB plans are generally more complex to regulate and supervise, and could stretch the institutional capacity of some emerging countries if implemented on a large scale.

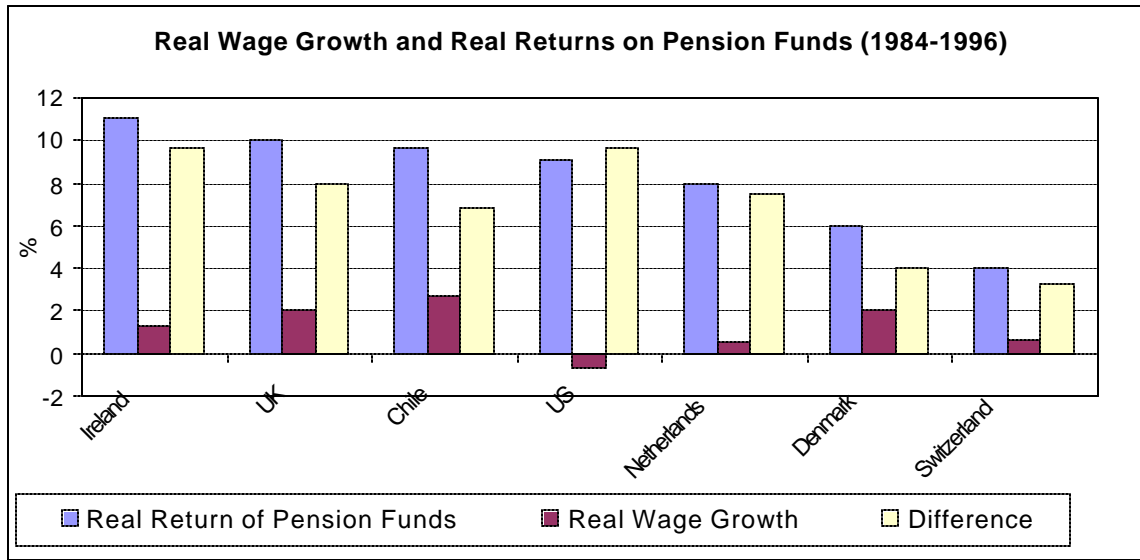
The potential principal-agent problem in occupational funds may also depend on whether the plan is sponsored by a single employer or by many employers. The presence of a single employer as an interested sponsor holding responsibility for the quality and results of asset management has often helped to ensure that these plans operate efficiently. Multi-employer occupational plans may prove more problematic. In contrast to single employer arrangements, in which the equity of the sponsors can effectively substitute for capital, some types of multi-employer plans may lack a financially liable and interested sponsor. Although the board of the plan may be held legally liable for the consequences of fraud and negligence, there may be no practical mechanism to ensure accountability for their decisions, and to secure financial assistance from the sponsors.

Occupational funds commonly utilize other intermediaries such as banks, insurance companies and mutual funds to obtain bundled investment management services, or engage specialized managers who are delegated considerable discretion regarding strategic, selection and trading decisions. Regulatory regimes applied to this model focus on controlling the nature of the relationships and transactions among the various parties, imposing standards of conduct, and prohibiting conflicts of interest, rather than assessing compliance or imposing investment results. Transparency and competition are often secondary considerations to adaptability and operational efficiency, derivative of the association with voluntary systems and employer sponsorship.

Although the performance of occupational-based funds may be affected by a potential principal-agent problem, the extent of this problem should not be exaggerated. A serious problem would have to be reflected sooner or later on the main performance indicators, namely, returns and costs. As shown in Figure 1, the average return of private pension funds in the UK, US, Ireland, and the Netherlands (countries where occupational arrangements dominate the pension industry, and where portfolio composition is subject to few restrictions) have been comparable or higher than the returns generated by Chilean funds over the same period, especially if measured in relation to wage growth. The returns in Switzerland and Denmark were lower, but this was in part due to restrictive investment regulations, rather than governance problems.¹⁹

¹⁹ There are probably other regulatory factors explaining the relatively low returns in these two countries during this period. For example, the guarantee of a minimum 4 percent return may have led Swiss funds to adopt conservative portfolio strategies during this period. However, pressures for improved performance grew during the 1990s, resulting in increasing equity holdings and much higher returns among Swiss funds.

Figure 1: Pension Fund Returns in Selected OECD Countries



These plans also operate with lower costs than open funds operated by management companies, largely because of the absence of marketing activities. For example, in the UK the Government estimates that the administration costs of open funds are more than five times as large as those of occupational plans. In the US, many large employer-sponsored pension funds operate with investment management expenses of less than 2/10th of one percent of assets annually (U.S. Department of Labor (1998); Husted (1998)). Although some of the costs of occupational plans are hidden (subsidized by the sponsor), these hidden costs probably pale in comparison with the marketing costs of open plans (Vittas (1998)).

Finally, in addition to trusts and foundations, there are also pension funds with boards operating on a mutual benefit basis (the fund is a non-profit entity and the board is elected from the members). This is the situation in Hungary, where both open and employer-based funds operate under this legal structure. However, the existence of a board with legal obligations, does not necessarily imply that members are represented and control the operation of the fund. In the case of the open funds, it is practically impossible for the board to change the asset manager, because the asset manager dominates the board, and was the reason most of the members joined the fund in the first place. Therefore the open funds in Hungary operate *de facto* like open funds without a board and run by a management company (as in Latin America). The employer-based funds resemble more the Angle Saxon trusts, because of the closer link with a sponsoring employer, and a board which may play a meaningful role. However, the employer-based funds account for a very small share of the second pillar.

3.3. *The Rationale for Regulating Pension Funds*

The regulation of the pension industry is partly driven by the same general objectives of regulation in other segments of the financial sector—the promotion of resource mobilization and allocation through a framework that ensures transparency, security and stability, minimizes costs, and that promotes sound investment decisions (along a range of permissible risk-return combinations). However, the regulatory framework for pension funds also needs to consider the unique characteristics of these institutions, which derive from the special role that they play in advancing key social policy objectives, such as the provision of retirement income.

Pension funds typically represent a greater portion of the household wealth of the average participant and reach more deeply through socio-economic strata than do other types of financial

intermediaries. This characteristic is especially relevant in circumstances in which participation in a privately managed funded system is mandatory (e.g., Argentina, Australia, Chile, Hungary, Poland, Switzerland) or quasi-mandatory (e.g. Netherlands, Denmark). However, even in countries in which participation in a private pension is essentially voluntary, such as the US, pension funds can also represent a large portion of household wealth (Gustan and Steinmeir (1998)). The growing importance of private pension schemes in the provision of retirement income, and the recognition that a major crisis in the industry could lead to pockets of poverty at old age and prompt calls for large-scale budgetary assistance to the elderly, has provided a strong motivation for the introduction of prudential regulation and supervision.

In most countries, private pension arrangements have been encouraged by a preferred tax treatment to contributions and investment income (in both the second and third pillars), effectively making fiscal authorities among the major “stakeholders” in a pension fund. Ensuring the equity of the distribution of these subsidies and protecting the value of the public “investment” contributes to the perceived need for greater security in the regulatory approach. Their critical role as an instrument of social policy has also led to the emergence of a variety of guarantees, especially in situations where the overall institutional and regulatory development of capital markets is judged to be deficient. Guarantees directed toward social policy objectives which establish government backed promises of rates of return or future benefit levels can create complex incentive structures and moral hazard problems. Establishing a regulatory framework in conjunction with guarantees is one of the more complex problems in regulating pension funds.

3.4. *Identifying the Risks of Pension Funds*

As with any type of financial institution, the regulation of pension funds originates with the identification and assessment of risks. Although fund members are subject to a great variety of risks, these risks can be grouped in three major classes, namely: (i) portfolio or investment risk; (ii) agency risks; (iii) systemic risks.²⁰

Portfolio risk contains unsystematic or diversifiable risk, and systematic or market risk. Proper portfolio diversification would tend to eliminate the unsystematic risk, leaving only the market risk. One of the main objectives of regulation is to ensure that portfolios are well diversified, while also eliminating some very risky and illiquid assets from the range of investment opportunities. Plan members are still subject to the risk of fluctuations in the market, even after proper diversification. This could be due to a variety of factors, such as normal fluctuations in asset prices, episodes of bubbles and crashes, and also unexpected jumps in inflation. The exposure to market risk tends to decline, the longer the time horizon and the holding periods, but an element of risk always remains (Krishnamurthi (1999), Alier and Vitas (1999)). There are proposals to deal with market risk, but most of these proposals involve complications and some negative side effects (as examined below).

Agency risks arise when the interests of fund administrators and asset managers are not fully aligned with the interests of fund members. The complex portfolio strategies associated with long term investment horizons, the informational asymmetries between fund managers and members, and the low levels of legal and financial sophistication of many fund members, create room for incompetence, inefficiencies, and abuse. The types of agency risks depend in good part on the legal and governance structure of pension funds (as described above), but all these types of funds are exposed, in one way or another, to agency risks.

The most immediate and obvious agency risk is the potential for fraud, misfeasance, malfeasance, or outright theft of assets. High visibility incidents such as the Maxwell case in the U.K., the diversion of union pension funds in the U.S. by organized crime syndicates in the 60's and early 70's, and more recently the disappearance of self designated “pension funds” in the former Soviet Union have repeatedly brought this problem into sharp focus.

²⁰ Srinivas, Whitehouse, and Yermo (1999) adopt the same classification. See also OECD (1998).

The well publicized cases where the fund's assets are transferred to personal accounts in exotic locations are the most obvious manifestations of agency risk, but there are other, more subtle channels, through which fund administrators and asset managers can siphon value away from plan members. Self-investment, investment in related companies, directed fee arrangements and kickbacks are other examples. In these cases, there may not be outright theft, but returns may prove much lower than in other alternative investments with similar risk. There is also room for a reduction in returns and benefits, through large overhead costs and fees. There are many opportunities for this problem in pension fund management because of the multiple types of fees that may be charged, including administrative, asset management, and transaction fees, as well as charges associated with annuitization. Moreover, there are significant transparency issues in regard to fees, because they are often netted against investment returns and concealed in financial reports or bundled with other services, obscuring the ability of members to make relevant comparisons.

Finally, systemic risks arise from the links between the pension industry and other areas of the financial system (and the economy as a whole). Although pension funds have minimal liquidity concerns related to a "run on the bank", they may be affected by a banking crisis. These crises can result in a sharp collapse in asset prices, affecting negatively some cohorts, and also lead to the insolvency of several banks. To the extent that fund managers are subsidiaries of banks, there is an overall erosion of capital protection in the pension industry. For the same reasons, the industry is also subject to negative spillover effects from other industries, such as insurance. Finally, a general economic downturn can also deteriorate the financial status of sponsors (in occupational plans). Among employer-sponsored arrangements, sectoral losses in employment leading to early or bunched retirements may result in payout requirements that are coincident with negative investment returns and a loss of contributions.

3.5. *The Regulation of Pension Funds*

Although private pension regulatory regimes are consistent in their attempt to address the various risks identified above, there is extensive variation in the manner through which this is accomplished. This variation originates with a number of factors, including the historical evolution of the system, the particular legal structure of the pension funds, the state of institutional and regulatory development of capital markets, and of economic development in general, as well as unique political and cultural environments. No simple descriptive framework can encompass the richness of this variation. It is possible, however, to identify the main components of regulation found in most countries. The typical components of regulation include:

- Licensing (authorization) Criteria
- Governance Rules
- Asset Segregation Rules
- Independent Custodian
- External Audit/Actuary
- Disclosure Requirements
- Investment Regulation
- Guarantees
- Minimum Capital and Reserves
- Regulations on Costs and Fees

Licensing criteria are adopted in most every country, although the conditions for licensing can differ substantially across countries and institutional models. Countries allowing only open funds operated by management companies generally focus on the capital and professional credentials of the management company (which may include the professional standing of the mother bank and/or insurance company). The supervisors in these countries typically seek to limit agency and systemic risks by imposing extensive licensing procedures in conjunction with capital and reserve

requirements, as well as “fit and proper” tests. This limits entry to a relatively small number of entities, making in depth oversight practical, and provides a significant source of security, albeit possibly at the cost of implicit rents on capital.

Systems utilizing the trust/foundation approach impose less stringent qualification requirements for fund managers (subsuming these instead under the prudence standards), and rarely require capital or reserves, although they may verify the qualification and reputation of trustees, and the business plan of the fund (e.g., indication of whether asset management and administration will be external or internal, etc). This aspect of regulation is approached in a more indirect manner, through the disqualification of individuals with criminal records or the use of lifetime exclusion from the pension industry as a sanction for the violation of pension laws. This approach to licensing is a reflection of the voluntary employment origins of the system, which relies on minimizing costs and entry barriers to attract participants. It also represents an implicit reliance on the capital of sponsoring employers to secure assets. Other methods, such as bonding requirements in the U.S. for parties handling assets, and requiring approval by a regulatory agency to manage funds, as is common in Europe, are less restrictive than those applied in Latin America.

Governance Rules. In occupational funds, the boards usually play a number of important strategic and oversight functions, setting broad investment strategies, and delegating responsibility for the management of funds to a range of service providers. Clear rules on board composition, voting rights, and duties and responsibilities of board members, can help improve fund governance and minimize agency risks. In the US, pension fund trustees are appointed by employers (where they are often senior officers of the sponsoring corporation) or employee organizations. The 1995 Pension Act in the UK has clarified and enhanced the role of trustees and puts great emphasis on education of trustees. However, the importance of the board in occupational schemes in the OECD also depends partly on the particular legal setting. Trust laws typically impose a greater reach of personal liability for responsible parties than do commercial codes, often penetrating corporate liability shields and permitting the attachment of personal property. Broader application of criminal penalties is also used for deterrent and remedial purposes. In continental Europe, several countries attempt to reduce agency risk by mandating split representations in the boards.

In open funds operated by management companies, the governance rules apply to the management companies themselves, as the funds typically have no boards. The management companies must be exclusively dedicated to pension fund management; they cannot delegate or sub-contract their management functions; and they can each manage only one pension fund. The quality of governance depends in great part on the quality of the rules on the boards of management companies (e.g. rules on self-dealing and conflicts of interest, rules establishing the responsibility of board members, rules exposing board members to personal liability). In the countries where open funds have boards (e.g. Hungary), the board is typically dominated and appointed by the management company and plays a more limited role in practice. In this case, the quality of governance will be critically determined by the rules applying to the management company.

Asset segregation rules aim at separating the pool of fund assets from the assets of the sponsor/management company, in order to protect members’ balances and vested rights, and limit systemic and agency risks. Asset segregation is obtained by construction in open funds operated by management companies, and is also obtained in most occupational funds through the requirement that assets be held in a specifically defined and separate legal entity such as the Anglo-American construct of a trust fund (except for the book reserve system, which requires insolvency insurance). Asset segregation does not hold in pension plans operated internally by insurance companies and/or banks (nor in endowment insurance funds). Although good prudential regulation of banks and insurance companies should protect the assets of plan members, there is definitely more scope for negative spillovers from banking and insurance crisis (systemic risk) in these cases.

External custodian rules are also essential to limit agency risks. Under adequate custodian arrangements, the administration of the fund and/or asset managers never directly hold legal title to

the assets of the pension fund, limiting the opportunities for fraud and theft by requiring that a separate party with defined responsibilities be required to execute all transactions. Custodians can also help enforce prudential regulations, by refusing to effectuate transactions that violate investment guidelines and other rules. For the custodian protection to be effective, however, it must control the flow of payments from members to the funds/asset managers without interruptions. Some systems allow gaps in such a control, opening room for misappropriation of funds.

Disclosure requirements involve a number of important rules, such as asset valuation rules, the frequency of asset valuation, and the distribution of relevant information (e.g., returns, costs, levels of capital and reserves) to fund members and the general public. Disclosure requirements are generally regarded as an essential component of regulation across all the sectors of the financial system. The banking sector in most countries has been subject to increasing disclosure requirements in the recent decades, as an attempt to improve the level of information among depositors, reduce agency risks, and enhance market discipline. In the pension industry, however, disclosure requirements vary substantially across countries and models.

Disclosure requirements are very important in mandatory DC schemes, particularly schemes allowing unrestricted individual choice. Open funds in most Latin American countries are subject to extensive disclosure requirements, which usually include daily asset valuation on a “mark to market” basis, account statements made available to members several times a year, and the publication of extensive and detailed information on the industry by the supervision agency, through quarterly and annual bulletins. Such an extensive disclosure of information is designed to enable workers to make informed choices and to put competitive pressure on asset managers, and also to allow switching on a fair basis (the balances of workers leaving a fund should reflect all capital gains and losses, realized and unrealized, and marked to market). The disclosure requirements themselves are an attractive feature of these systems, although the extensive switching across funds seems to be more driven by marketing efforts than by objective comparisons of returns and costs (Queiser (1998), Vittas (1998), Srinivas, Whitehouse and Yermo (1999)).

Disclosure requirements in OECD countries are generally less extensive. In some countries, regulators impose disclosure of information, but mostly through annual reporting, and also permit greater discretion in terms of valuation. The reliability of these reports is assessed through external independent audit requirements, because it is not feasible to review the large number of regulated entities. In some countries there are no legal requirements to disclose information (OECD (1998)).

The less extensive disclosure requirements in the OECD derives probably from the occupational nature of the pension industry. Funds are less pressed to publish frequent and detailed individual statements in systems that restrict individual switching. It has also been argued that under these systems, there may also be a rationale for allowing some deviation from mark to market valuation rules. Valuation techniques based on projected revenues from assets and other interest accrual methods smooth fluctuations in asset prices and may enable funds to hold a larger share of equity in their portfolios. Thus, it has been argued that this is one the reasons why British funds generally held more equity and obtained higher returns (OECD (1998)). More flexible valuation regimes also permit the holding of non-publicly traded assets such as real estate or venture capital, for which frequent valuation would be expensive and contribute little to an evaluation of a fund’s financial status. If properly managed, holding these types of assets may enhance long term yields and help diversify risks over the time horizons appropriate to pension funds.

Despite these justifications for more flexible disclosure rules in occupational funds, it is surprising that some OECD countries do not impose any legal obligation to disclose information, as members must be informed about the situation of the fund, in order to be able to exert discipline and control over the fund’s situation, and reduce agency risks, irrespective of whether the fund is occupational or not, and whether it operates on a DB or DC basis.

External Audits of pension fund accounts are required in every country, although the scope and quality of external audits may vary substantially from country to country. The legal duties and responsibilities of external auditors may also vary substantially across countries. In underdeveloped legal and institutional environments, the external audits do not provide an independent and objective assessment of the fund's situation, and the legal responsibilities of auditors are not clear and/or enforceable. In other countries, external audits not only provide an accurate and independent assessment, but also constitute the most important tool of supervision. Auditors are required to report any problems to the supervisor and are legally liable for the failure to do so. External actuaries play a similar role in DB schemes or DC schemes with guarantees.

Investment Regulations. The stated objective of investment regulations in most countries is to ensure diversification and minimize agency, systemic and, especially, portfolio risks. The regulations typically involve ceilings on holdings by issuer, by type of instrument, by risk, by concentration of ownership, and by asset class. Whereas the first four restrictions are considered as non-controversial prudential rules and are adopted in one form or another in most countries, restrictions by asset class constitute one particular area of regulation that has generated more controversy.

There is a group of OECD countries that does not impose restrictions by asset class, other than the prescription that the portfolio be managed prudently. The regulatory framework in these countries (which are mostly the Anglo-Saxon countries and the Netherlands) are said to follow the "prudent man" rule. It simply requires that those responsible make investment decisions while exercising diligence and expertise and considering the specific circumstances of the fund. The usual adjunct is a general dictate for diversification and a duty of loyalty (sole consideration of the members' interests). This rule is usually construed to permit consideration of individual investments in the context of their role in the larger portfolio, thus permitting high risk assets to be included in a pension portfolio so long as the risk is hedged elsewhere in the portfolio.

On the other hand, a second group of OECD countries and all Latin American countries impose restrictions by asset class. Investment regulation in these countries has been labeled as "quantitative", or "draconian" (OECD (1998), Vittas (1998), Queiser (1998), Srinivas, Whitehouse and Yermo (1998)).²¹ These regulations typically specify the maximum amount that pension funds can invest by asset class, although some countries also specify ceilings on individual assets, and even minimum holdings of assets (typically Government bonds).

There is evidence that real returns of pension funds in prudent man environments have been higher than the returns of funds operating in more restrictive environments, essentially because of a larger share of equity in their portfolios (OECD (1998), Davis (1995 and 1997)), although the difference cannot be entirely explained by investment restrictions, because these were not binding in many countries. It is clear that investment restrictions may be in principle counterproductive, as they may prevent diversification and expose fund members to a greater degree of portfolio risk. However, it is also understood that investment restrictions may be initially justified in countries with underdeveloped institutional and regulatory structures, and shallow/illiquid asset markets. The "draconian" approach is also simple and easy to police. The prudent person approach requires a greater element of judgement by the supervisor, and necessitates a substantial interpretive effort to assist practitioners in understanding how the general principles will be applied. It is consequently associated with greater uncertainty for all parties. While in principle it should preclude outlying investment behavior, in practice the courts in the United States have been reluctant to reverse even highly risky investment behavior solely on the basis of prudence, unless losses have been realized.

²¹ The OECD (1998a) and (1998b) provides an extensive and detailed comparison of investment regulations in OECD countries. Srinivas, Whitehouse and Yermo (1999) provide a similar comparison for Latin American countries.

The literature on pension fund regulation generally concludes that investment restrictions may be initially justified in emerging countries introducing private pension schemes, particularly those introducing a mandatory second pillar. However, there is also a consensus on the need for these countries to relax the restrictions over time, in line with the development of institutions and instruments, improvements in the depth and liquidity of securities markets, and also improvements in the overall legal framework. The long run objective would be the adoption of the prudent man approach, where minimal restrictions are imposed. The experience of Chile in this area is regarded as a positive example for other reforming countries.

A more recent and controversial issue in the area of investment regulation relates to the debate on single versus multiple portfolios. The portfolios of pension funds in most countries are already reasonably diversified, and the degree of diversification has been increasing, with the relaxation of investment restrictions in many countries and the increase in the share of equity and foreign assets (De Ryck (1997), Davis (1997), OECD (1998)). However, it has been argued that the overall degree of diversification is still insufficient, because the portfolio composition across funds tends to be similar, due to a strong herding effect.²² Even in countries where switching is allowed, workers do not have a meaningful choice between risk-return combinations, because all the available portfolios are essentially identical. Thus, young and old workers are forced to hold the same portfolio, which is sub-optimal for both, as young workers would favor portfolios which exploit risk and liquidity premiums (i.e. with a larger share of equity), and older workers require portfolios with less risk and greater liquidity (those with a larger share of short-term, fixed income assets). Although several pension funds calibrate their investment policies to the average age of the fund members, it could be argued that the portfolio would still be sub-optimal for members of different ages. To help solve this problem, it has been proposed that workers be offered a choice of more than one portfolio (e.g. Srinivas, Whitehouse and Yermo (1998)).

Whereas the theoretical merits of multiple portfolios can be clearly appreciated, the question is to extent to which the welfare gains would offset the costs. It is generally recognized that multiple portfolios would tend to increase the costs of administration and compliance. Although these costs would tend to decrease with developments in electronic technology, they could still prove a burden in some emerging countries. Second, the welfare gains depend on how many individuals are effectively constrained by the single portfolio. High income individuals are clearly not, as they have a large volume of individual savings, and can build their own voluntary asset portfolios in a way that offsets any constraints imposed by the single mandatory portfolio. Low income individuals do not have individual savings to offset these constraints, but the retirement income of low income workers in most countries comes primarily from first pillar (PAYG) benefits. The welfare gains from multiple portfolios would be relatively modest in these cases. Therefore, the welfare gains would be concentrated in the average income individuals and could still be substantial or not, depending on the size of mandatory portfolios in total pension wealth (including the first pillar benefits), the extent to which these individuals are already offsetting these restrictions through voluntary savings, and on income (and age) distribution.

Finally, the gains would also depend on whether individuals would make informed decisions about the composition of their portfolios. In this regard, the experience with 401(k) plans in the US, which now typically provide at least four to five choices to participants, is rather mixed. Although it is reassuring that the share of equity is negatively correlated with age, the patterns of asset composition can still differ significantly from prior expectations (Srinivas, Whitehouse and Yermo (1999)). Market surveys of workers participating in these plans also indicate that the average level of financial sophistication is rather low (Vittas (1998) and Franz et al (1997)).

Despite these mixed results, a system offering multiple portfolios can still be seen as a very elegant and efficient construction in sophisticated environments, and within the context of voluntary

²² Herding is stronger in Latin America, possibly because of the effect of guarantees (as discussed below), but is also observed in the OECD, even among countries following the prudent man rule.

arrangements. To be effective, it requires the development of a regulatory framework which allocates liability for investment decisions between members directing their accounts and fund administrators conducting all the other activities, which imposes substantial new layer of complexity on any system. It also requires an extensive and ongoing program of education for fund members. Both of these considerations limit the applicability to well developed systems serving sophisticated populations. Introducing multiple portfolios in mandatory pillars and less sophisticated environments requires a more careful assessment of costs and benefits. This issue is examined again in the discussion of guarantees on second pillar benefits.

Guarantees. Most countries that have introduced a second, mandatory pillar, have also been induced to offer some form of guarantee on second pillar returns. In Latin America and Central Europe, most minimum return guarantees have been expressed in relative terms, although there have been several variations around this theme. These minimum return guarantees have been defined relative to the average return of all pension funds, to a broader market benchmark, or to a combination of both. They can also be expressed in nominal or real terms. For example, Chilean funds have to achieve a minimum return equal to 50 percent of the average real return of the industry, and Argentine funds must achieve a minimum return equal to 70 percent of the average nominal return of the industry).²³ These guarantees are usually backed by the minimum reserves and equity imposed on the asset manager. The level of minimum reserves are usually stated as a fraction (1-2 percent) of the size of assets under management. In the case of insolvency of the asset manager, there is usually an explicit guarantee from the budget.

Other countries have introduced minimum absolute rates of return, expressed either in nominal or real terms. Switzerland provides a minimum nominal return of 4 percent p.a., backed by a central guarantee fund. This guarantee has amounted to a minimum real return of around 2 percent per year, given the low levels and the stability of inflation in Switzerland (in many other countries this guarantee would not be meaningful). Hungary has introduced a minimum second pillar benefit which is defined in relation to the first pillar benefit. This benefit can be expressed in terms of a minimum rate of return, although the rate of return is age-specific. Under baseline assumptions, this guarantee is equal to a reasonable 0 percent real rate of return for young workers, calculated over the working life, but a much more ambitious 4 percent real rate of return for workers in their forties. The guarantee is backed by a central guarantee fund, and the imposition of minimum reserves on the pension funds. The minimum reserve of pension funds is used when the returns are lower than 85 percent of a benchmark portfolio. Uruguay has introduced a scheme that implies de facto a minimum real rate of return of 2 percent.

The introduction of guarantees always raises three inter-related questions. The first is the types of risk that the guarantee is expected to cover. The question here is whether the guarantee is excessive or not. The second is the amount of capital backing the guarantee. The critical issue here is whether the capital buffer is consistent with the probability of the guarantee being called and the size of the exposure. The third is the changes in behavior triggered by the guarantee. The key issue is the extent to which the guarantee itself modifies behavior in perverse ways (moral hazard).

Relative guarantees such as those introduced in Latin America attempt to deal primarily with incompetent/inefficient asset management, fraudulent behavior and other agency risks. They do not attempt to deal with market risk. Also, the typical construction in Latin America puts private capital at risk in some relation with the exposure (i.e. the reserves and equity of the asset manager are a fraction of the assets managed) before the Government guarantee is called. Therefore, the guarantee is not overly generous, and does not seem to induce excessive risk-taking behavior by asset managers. The problem that has been observed in Latin America is the herding behavior of pension funds—as

²³ Vitas (1995 and 1998), Queiser (1998) and Srinivas, Whitehouse and Yermo (1999) provide a description of guarantees in Latin American countries and some CEE countries.

mentioned before, herding in Latin America seems more intense than herding among pension funds in the OECD.²⁴

Absolute guarantees such as those introduced in Switzerland and, to some extent in Hungary, attempt to deal with market risk as well, by introducing some measure of inter-generational risk pooling (as in DB schemes). Both countries back this guarantee by a central guarantee fund (supported by mandatory contributions from all pension funds), but without putting private capital at risk first. Swiss funds are not forced to constitute minimum reserves or capital. Hungarian funds are forced to hold minimum reserves of 0.5 percent of the size of individual accounts, but these reserves are imposed at the level of the fund itself, not the asset manager.

These constructions are in principle flawed, because they provide access to the resources of a central guarantee fund without putting private capital at risk first. The scheme has operated in Switzerland, apparently without major problems, partly because of the implicit links with the sponsor and the reputation and goodwill factors. Single employer funds usually provide resources required for the fund to reach the minimum 4 percent (sometimes pressed by the supervisory authority), and open funds (managed by insurance companies or banks) also provide the resources necessary for the fund to reach the minimum, in order to safeguard their reputation. Therefore, the system seem to operates relatively well without explicit legal backing, because of recourse to more implicit forms of private capital protection.

In the case of Hungary, the guarantee is less generous for younger workers, but more generous for older workers. It is fortunate that most of the workers in the new Hungarian system are under the age of 35, but the probability that workers in their forties will trigger the guarantee is not negligible. As mentioned before, the other problem is that the minimum reserves have been imposed at the level of the pension fund, not the asset manager. If these reserves need to be used, they may be replenished from new contributions, rather from the resources of the asset manager. It could be argued that, by imposing this potential burden on future contributions, the fund members will be induced to exert more discipline on the asset managers. However, the asset manager himself does not have to bear direct consequences for excessive risk-taking behavior. Therefore, this construction also depends on more implicit links with the sponsors, which are large companies in the case of occupational-based funds, or large financial groups (banks and insurance companies) in the case of open funds. Although these sponsors are usually well established organizations with their reputation at stake, and will probably provide backing to their pension funds, the protection still lacks a more explicit legal base.

Capital/Reserve Requirements. The notion of capital does not have meaning in funds constituted as trusts, foundations and mutuals, as these legal entities do not have shareholders, although the liability assigned to the sponsors of these arrangements often serves as a proxy. In pure DC schemes providing no minimum returns there is no rationale to constitute capital, except in the form of voluntary reserves, agreed by the members and designed to smooth fluctuations in yearly returns. DC schemes may also voluntarily adopt portfolio strategies that involve an implicit target rate of return and smoothing of short-term returns. This can be achieved by use of immunization strategies that smooth the impact of short-term fluctuations in interest rates, and/or use of directives to limit the impact of equity price fluctuations on the pension fund.

If the fund has an explicit obligation to produce minimum returns, then it becomes essential to impose capital requirements commensurate with the obligation. As mentioned before, in Latin America these requirements are imposed on the management company.²⁵ Two countries with

²⁴ The interesting question is whether herding is indeed a problem, when portfolios are similar but well-diversified.

²⁵ The funds in Chile and Argentina also have a “profitability reserve” a the level of the pension fund itself (not the asset manager). This reserve is accumulated in periods of high returns and used in periods where

mandatory DC schemes have constituted central guarantee schemes to which all funds have to contribute. The asset managers/management companies in these countries do not need to constitute capital and reserves. The foundations in Switzerland do not need to constitute reserves either, whereas the Hungarian mutuals do. The Hungarian construction is possibly slightly better than the Swiss, as it signals to fund members that they need to exert discipline on the asset manager. However, in neither country asset managers/sponsors have their capital explicitly at risk.

Restrictions on fees are a common feature in Latin American and Eastern European systems. Chile, for example, permits only certain categories of fees, prohibiting exit charges, asset based management fees and performance fees. Commissions for selling agents and annuity conversions on the other hand are held to a prescribed level. Hungary places limits on the fees that the fund may charge for administration but places no specific limits on what it may pay asset managers. Trust based systems generally do not explicitly regulate fees. In the US, fee levels are regulated indirectly through the general prudence requirements through a provision in the law which specifies only that they be “reasonable”.

It is debatable whether regulation of fees in the pension industry (and in the financial sector more generally) can be enforced, and whether it produces the desired effects (assuming that they can be enforced). Regulation of costs may lead to shifting costs to other unregulated categories and a loss of transparency. Prescribed limits may also result in a clustering of expenses at maximum and have been perceived as anti-competitive. The reasonableness approach, on the other hand, is difficult to enforce especially because it is associated with system with many funds (700,000 in the U.S.), and is a weak constraint on the inherent agency problems of an employment based system.

3.6. *The Supervision of Pension Funds*

The Supervision of pension funds incorporates the same three basic aspects relevant to the oversight of banks discussed in the previous section, namely: (i) ex-ante licensing activities, (ii) ongoing monitoring and inspections, and (3) remedial and punitive problem resolution. However, consistent with the greater diversity of system designs and regulatory approaches outlined above, there is considerably greater variation in these supervision programs than among bank supervisors. In general, the pension supervisory programs reflect the regulatory frameworks which they are designed to implement.

In this respect, supervision of pension funds may generally be categorized as following two basic models. The first of these is associated with systems based on a small number of open funds, such as those operating in most Latin American countries. Supervision of these systems emphasizes the first two supervisory “building blocks”, by limiting participation in the system to entities that meet strict structural standards, supported by close and direct monitoring of their status and activities through extensive reporting requirements. This approach is closer to the bank supervision model followed in most countries, through its reliance on strict adherence to stringent regulations in order to pre-empt potential problems.

These Latin American systems are often characterized as pro-active in regard to their compliance activities (Vittas, (1998), De Marco, Rofman, and Whitehouse (1998)). A small number of large funds facilitates this pre-emptive approach to compliance. The supervisory agency plays a major role in reviewing and approving licenses to operate a pension fund, which then may require periodic renewals necessitating considerable interaction with the supervisor. This is achieved by extensive off-site analysis and on site reviews on a regular basis with authorities, maintaining continuous contact with funds in an attempt to prevent deviations from prescribed standards. This

returns fall below the minimum. However, most funds do not have large profitability reserves, because of the herding effect. In any case, the capital protection is expected to be provided primarily by the asset managers' compulsory reserves and capital.

approach is generally associated with extensive reporting requirements, in some cases on a daily basis. The pro-active model is one in which supervisors take a more directive and interventionist stance rather, than focus on corrective actions.²⁶

The alternative model has been labeled as re-active, and is associated with systems that utilize the Trust/Foundation form of organization. These are systems which are typically voluntary and employment based, with a large number of funds operating as intermediate vehicles for the investment and collection of funds. Investment management is often conducted on a contractual basis through other types of financial service organizations. Supervision and enforcement within this model is labeled as reactive, because the supervisor usually intervenes only when problems are reported, either by trustees, fund members, external auditors, actuaries, or other relevant players (including other supervisors). Pension supervision is more remedial in nature, or more oriented toward the third element of problem resolution. The system essentially relies on other active players monitoring the funds, and also on credible deterrents to violations of the laws.

This fundamental difference in these styles of supervision originates from the basic organization of the industry. Among the most important of these are the number of funds, the less intrusive practices in occupational-based systems, and the level of development of capital markets and legal systems. Of particular significance is the management of assets via other highly regulated financial intermediaries (banks, insurance companies, brokerage houses) and the development of independent financial auditing institutions and practices. The nature of pension funds as second levels of intermediation enables regulators to rely more on other supervisory institutions to provide the first line of defense against fraudulent practices. While in some respects this narrows the range of the supervisors activities, it creates an additional need for them to coordinate with different authorities. A tradition of independent audits with a high degree of integrity also permits supervisory authorities to rely on this mechanism for monitoring, and deploy their resources toward corrective actions. As with regulatory frameworks, a key differentiation in the applicability of these models is the level of development of the economy. A reactive approach is only feasible in the context of developed economies with well established and reliable financial and legal institutions.

Despite the importance of supervisory institutions and programs to the security of private pension system, at present there is very little literature on the various institutional arrangements and operations of supervisory agencies. The methods in use, however, may be generally categorized as follows.

Licensing of Funds. The range of methods for the approval of funds to operate is one of the more widely varied areas of supervision. In Latin American countries, with systems based on a small number of open funds, the licensing of funds constitutes one of the primary activities of the supervisory agencies, which may often have a distinct unit devoted to this process. Prior to the granting of licences, funds are required to provide extensive documentation regarding their compliance with minimum capital levels, reserves or other financial criteria. The legal form of organization of the fund management, business and marketing plans, investment policies and the qualifications of relevant staff are scrutinized, to assess a priori the adherence to the requirements prescribed by the law and regulations. This extensive process sets the stage for the ongoing relationship with supervisory authorities.

Representing the other end of the spectrum, countries such as the United States do not require any specific license for employer-sponsored pension funds. The requirements to operate are indirectly established, through requirement of written documents that set forth terms of the trust, benefit formulas and designate individuals with specific responsibilities. These are essentially constructed as standards governing a private transaction in a manner analogous to a commercial code,

²⁶ For a more extensive description of pro-active supervisory systems see Demarco, Rofman and Whitehouse (1998)

and are not required to be submitted to any government authority for approval, only to be made available to participants and supervisory authorities on request. The only action similar to licensing is the application of preferential tax treatment to the appropriate tax authorities, which although commonly done is also discretionary. Many other OECD countries fall within this range. Common practices require application for licensing to the relevant authorities, but on many cases these resemble more a simple registration process. Hungary and Poland have essentially adopted the Latin American approach with extensive requirements, while Australia requires no license for the fund to operate, but requires approval of the trustees.

Monitoring and Inspection. The core of most supervisory programs is in the monitoring of the activities of funds. These comprise two main forms of activity: the review of reports on the financial status of pension funds (off-site surveillance), and the conduct of on-site reviews. Reporting requirements vary widely in their frequency and depth, but are generally maintained by most supervisory agencies. This serves the dual purpose of providing data for compliance assessment and exposing funds to scrutiny to achieve a deterrent effect. In pro-active environments, supervisors utilize reports to monitor portfolio composition and other structural requirements in effectively a “real time” environment, taking pre-emptive action on the basis of the information. Supervisors operating in the reactive mode generally receive financial reports after more extended periods, often annually, and use the data to select funds with indications of potential problems for more in depth review. A common role of supervisory agencies is also to make financial and other data about fund operations accessible to members. In Hungary, the supervisory agency actually is responsible for assembling and providing some reports to members to ensure their validity.

On-site inspections are often the most visible element of a supervision program. Virtually all legal systems provide supervisors with the authority to access all the records and examine other relevant materials on site. Supervisory agencies will typically devote substantial resources to these kinds of activities. Differences lie in the objectives, scope and frequency of these reviews. Pro-active systems structure these reviews as audits, in which there is a systematic attempt to review all aspects of the funds activities, tracing contributions through to individual accounts, verifying the completeness and accuracy of financial statements, and evaluating adherence to investment limitations and other requirements. These audits are undertaken on a regular schedule, with all funds reviewed on at least annually, with the objective of making a full assessment of compliance.

Alternatively, re-active arrangements structure reviews essentially as an investigation of specific issues, often conducting on site inspection on an *ad hoc* basis in response to a complaint or specific indication of a problem. These specific and in-depth investigations may include a set of transactions, the flow of individual contributions, or fee arrangements, without initially attempting to provide a comprehensive review. However, once such a review is initiated, it often leads to the examination of other issues. This mode is in part a practical response to the need to cover a large universe of funds with limited resources, but it also reflects the reliance on independent auditors to undertake reviews of the overall integrity of financial data. Programs that primarily operate as “investigations” will also undertake a certain random component, designed to provide a cost effective deterrence presence. In these kinds of regimes, establishing effective systems for processing complaints, and developing algorithms for the automated review of annual reports are critical to the success of the endeavor. In the United States, programs to assist participants in resolving benefit disputes have proven to be an effective source of targeting inspections.

Problem Resolution. The application of sanctions for remedial and punitive purposes is usually the most difficult part of any supervisory program. In countries employing more pro-active systems there is a heavy emphasis on pre-emptively addressing compliance issues, by providing supervisory agencies the authority to direct funds to make changes in their operations. The corrective actions in re-active systems more closely resemble civil or commercial legal proceedings. In these systems, letters or more formal legal complaints are more likely to be the predicate to corrective action. Although this approach may be structured to more closely resemble an adversarial legal proceeding, in practice the majority of cases may be settled voluntarily. In addition, some supervisors,

perhaps most notably the Netherlands, have also relied on moral suasion in the form of exposing problem institutions to bad publicity, which has apparently been effective in correcting problems. Virtually all systems provide access to the courts to resolve the most contentious problems, and provide a check on the authority of the supervisors.

Sanctions available to supervisors include removal of persons from positions of authority in funds, their permanent exclusion from involvement in pension fund business, and the unwinding of transactions deemed inappropriate. Restitution of losses, fines, and criminal penalties for more egregious problems are also typically available to supervisors, although the authority for the application of these may be separated from the supervisory agency. Systems which impose reserve and capital requirements impose charges against these as well. Providing individual members with access to the courts to pursue financial remedies for individual losses is also commonly an adjunct to the activities of supervisors.

A final key aspect of supervision is the placement of the authority. While all approaches necessitate political independence in the regulation of pension funds, there are systemic differences in the placement of this authority. Latin American countries have generally established what are effectively independent institutions, reflecting the underlying construct of pension funds as effectively stand alone special purpose financial institutions. Most others have established the authority as a distinct unit within a larger public institution, placing regulators under the broader auspices most commonly of Finance or Labor Ministries, or Insurance Regulatory Authorities (see OECD (1998)). Two recent Eastern European reforms (Poland and Hungary) have essentially split the difference, creating supervisory authorities that operate with a reasonable degree of independence, but that ultimately report to Ministries. Consolidating regulators is a greater imperative in systems that are more interactive with other regulated financial intermediaries. The integration of supervision activities in the U.K. and some Scandinavian countries represent perhaps that furthest extent to which this concept has been advanced.

4. Scope for Improvements and Possible Lessons from the Banking Industry

4.1. The Exposure of Banks and Pension Funds to a Systemic Crisis

Before examining the scope for improvements in pension regulation, and the possible lessons from the banking sector, it is useful to review some of the major differences between banks and pension funds. As mentioned before, banks are highly leveraged, involved in substantial maturity transformation, and hold assets that are difficult to value and monitor. As a result, banks are subject to a variety of risks, such as credit, liquidity, interest rate, and currency risks. Banks are also subject to inside abuse, fraud, and other agency risks. The high leverage in banking and the structure of bank liabilities, imply a substantial degree of exposure to these risks, and the possibility of contagion effects triggering a chain of bank runs and failures.

Pension funds function with substantially longer time periods than banks and other intermediaries, with the typical participant having a relevant investment horizon measured in decades rather than months or years. They are also prohibited, with relatively few exceptions, from borrowing and leveraging their portfolios. Both of these tend to minimize their liquidity requirements. Pension funds are almost exclusively engaged in portfolio optimizing strategies which focus on diversification, selection and exploiting time period premia, rather than those directed toward interest rate spreads or the management of liquidity exposure.

Although systems subject to extensive switching across funds (as those in Latin America) may shorten the time horizon somewhat and create the need for some additional liquidity, it remains true that pension funds are not subject to contagion effects and runs, at least not directly. In systems dominated by occupational funds there is little, if any, risk of massive withdrawals in the presence of a crisis in the financial sector. In systems dominated by open funds there can be in principle withdrawals from individual funds, but not from the system as a whole. Systemic failures are not

likely for the same reason, except in the hypothetical case where the funds are subject to high minimum returns imposed on an annual basis and there is a major capital market crash, depressing asset prices substantially and for a protracted period. No country seems to be exposed to this type of extreme situation. These are very fundamental differences between banks and pension funds that determine major differences between the two regulatory frameworks (the imposition of liquidity requirements, access to lender of last resort facilities, the complex machinery of loan classification and provisioning, and the complex measurement of capital are just a few examples).

At the same time, while pension funds are not subject to systemic runs and failures, they can still suffer the effects of a major financial crisis in other ways. It is important however, to examine further what is the worst possible scenario for the pension industry, how the industry would be affected, and what would be the regulatory options to deal with these extreme cases.

The worst possible scenario for pension funds is essentially the same scenario for banks and other financial intermediaries. The economy is subject to a major macroeconomic shock, generally following a period of rapid output growth. The period of expansion may involve several inefficiencies in resource allocation and the financing of numerous projects of dubious return by banks and other financial intermediaries. The period of expansion may also be accompanied by steep increases in asset prices, possibly unsustainable asset price bubbles, particularly in equity markets, but also in other markets such as real estate. The shock is usually triggered by a balance of payments crisis, and typically provokes a policy response that includes a real devaluation, a fiscal adjustment, and an initial contraction of credit.

The shock and the policy response cause usually an immediate rise in interest rates and a contraction in economic activity, concentrated in the sectors that were overexpanded and overleveraged. Several enterprise become insolvent and bank portfolios deteriorate rapidly, leading to bank insolvency as well. A loss of confidence triggering runs on banks is frequently observed in these cases. Irrespective of whether there are bank runs or not, asset prices decline, and if the period of expansion was accompanied by asset price bubbles, the new equilibrium levels may be substantially lower. Moreover, the decline in asset prices may involve an initial undershooting—prices decline initially more than their new lower equilibrium level.

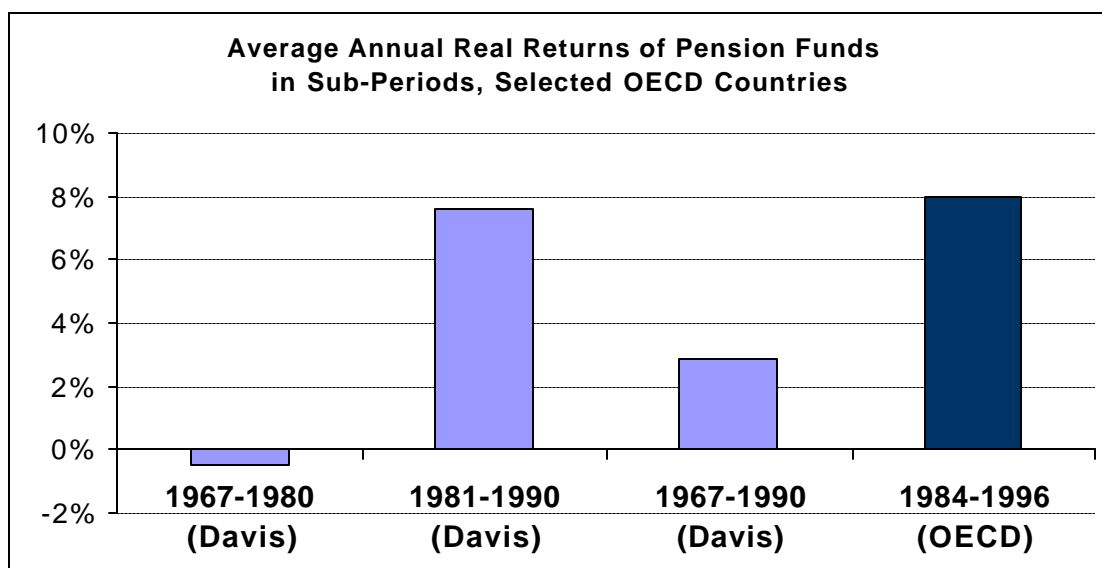
Pension funds can be affected by a financial crisis in two fundamental ways. First, they may experience a major decline in the nominal and real value of their portfolios. The drop in value is sharper the larger the share of equity and long-term fixed income assets. Second, they may be subject to negative spillover effects from other areas of the financial and real sectors. The spillover effects are potentially more severe in the cases where there is no clear asset segregation, i.e., where the pool of pension assets is not clearly separated from the assets of other financial intermediaries and companies.

The decline in the real value of pension funds' asset portfolios implies a commensurate decline in the accumulated individual balances and in future pensions, but the impact of this decline needs to be examined considering the long time horizon and holding periods with which pension funds operate. Most of the cohorts that experienced a decline in real asset prices as a result of a financial crisis probably benefitted from sharp increases in prices in the period preceding the crisis. The long holding periods imply a smoothing of periods of price level fluctuations, and even of sharp price level bubbles and bursts.

The effect of long holding periods can be appreciated by examining the average real returns of pension funds in the OECD over the last three decades. As shown in Figure 2, the average real returns of pension funds in the OECD were negative during the 1970s. During this decade, the world economy was subject to two oil shocks that caused a sharp contraction in economic activity and unexpected price jumps. Equity markets were depressed during the period, and pension funds also realized sharp capital losses in their portfolio of long-term fixed income securities. On the other hand, during the 1980s and 1990s real returns were extremely high, probably driving the overall average

return over the three decades to around 5-6 percent p.a., some 3-4 percent above average wage growth during the same period. These unweighted averages mask significant differences across countries. Pension funds subject to less restrictive investment regulations achieved higher returns.

Figure 2: Annual Real Returns in OECD



The smoothing effect of long holding periods is generally reassuring, although it must also be recognized that fluctuations in asset prices may lead to differences in average returns and replacement ratios across cohorts with the same level of income, even after considering the long-run averaging effect. In a simulation with US data on asset returns covering 125 years (1970-1995), Alier and Vittas (1999) find that the average return on a balanced portfolio (consisting of 60 percent equity and 40 percent fixed income assets, and held for a period of 40 years) would have ranged from around 2.5 percent p.a. in the early part of the century, to more than 8 percent p.a. in the post WWII period. These differences in average rates of return would have translated into significant differences in replacement ratios—a 10 percent contribution rate would have generated replacement ratios ranging from a minimum of 22 percent to a maximum of 70 percent.

These results should be examined with caution, as they probably overestimate the likely differences in replacement ratios across cohorts generated by real systems today. For one, Alier and Vittas also show that only 11 percent of the cohorts would have received replacement ratios under 30 percent of final wages. Achieving a 30 percent replacement ratio with a 10 percent contribution rate is a better result than that provided by most PAYG systems in demographically mature countries. Secondly, the dispersion in average rates of return would be reduced if the first decades of the century were excluded from the sample. Thirdly, many pension funds already apply asset management techniques designed to smooth the fluctuations in returns over time, and the scope for smoothing returns has increased with increasing portfolio diversification, the development of derivatives, and other hedging techniques.

Although Alier and Vittas' results probably overestimate the likely differences in replacement ratios, they do illustrate the potential effects of market risk on retiring cohorts, and raise two important questions for regulators. The first question is the size of workers' exposure to market risk, and whether there are instruments to deal directly with this type of risk. The second is whether there are other regulations that would strengthen the governance and management of pension funds and their capacity to cope with these and other risks. In examining these questions, possible lessons from banking regulation will be identified.

4.2. *Copying with Market Risk: Possibilities and Pitfalls*

The exposure of the average retiring worker to market risk depends in the first place on the relative size of the private pillars of retirement provision, particularly the size of the second pillar. Multi-pillar systems contain already an element of risk diversification, as the implicit returns on the first pillar contributions are weakly correlated with the second pillar returns.²⁷ The new second pillars that have been introduced in most Central European countries and in many Latin American countries generally account for 25-50 percent of total mandatory contributions (Chile being the exception rather than the rule in this regard). Therefore, the exposure of the average worker to market risk is already diluted by the multi-pillar construction. It is important to have this in mind, as most measures available to reduce market risk involve complications and negative side-effects.

Assuming that pension funds exhaust the potential for risk reduction by proper portfolio diversification (including investment in foreign assets), portfolio risk is reduced to systematic, non-diversifiable market risk. There are five possible ways to deal with this risk. The first is to introduce DB schemes. The second is to introduce guarantees on minimum second pillar returns and/or benefits. The third is to allow multiple portfolios. The fourth is to allow deferral of annuities. The fifth is to introduce variable annuities or a sequence of fixed annuities. These different solutions are examined in more detail below.

Introducing DB schemes. DB schemes deal with market risk by introducing an element of inter-generational risk pooling. However, as mentioned before, DB schemes also generate several complications in the labor market and are much more difficult to regulate and supervise. The inter-generational risk pooling is also weakened in practice by the penalties imposed on early leavers, and may be further weakened when the sponsor faces financial difficulties. Most importantly, it would be very difficult to implement a mandatory, privately-managed second pillar on a standardized DB basis. In fact, the tightening of regulation in voluntary DB schemes in the US and the UK, and the increasing costs of compliance for employers, is the major reason for the trend from DB to DC in the two countries.

Guarantees on second pillar benefits. Guarantees on minimum second pillar returns/benefits also introduce an element of inter-generational risk pooling. Examples of this type of guarantees are the Swiss minimum 4 percent nominal return (around 2 percent in real terms), and the Hungarian minimum second pillar benefit, which is equivalent to a minimum lifetime real return of 0-4 percent, depending on the age of the worker (around 2 percent on an age-weighted basis). Both guarantees are backed from a central guarantee fund to which all funds must contribute.

The introduction of absolute guarantees on second pillar benefits generate similar complications as those generated by deposit insurance and guarantees in general. As mentioned in section 2, the main lessons from the experience with deposit insurance in the last decades is that the guarantees should be partial, backed by risk-based capital requirements and risk-based insurance premia. The constructions above do not seem to contain most of these elements.

A guaranteed real rate of return of 2 percent applied on an annual basis can hardly be seen as partial. Although the rate itself is lower than the average real return in the OECD over the last three decades, and what would be expected from a private pillar, its application on an annual basis is problematic. It allows workers to share periods of boom in asset prices (including price bubbles) without sharing the downside risk, leading actually to a return above the long-run market average. This guarantee would either prove unsustainable or would need to be financed by very large contributions to the guarantee fund and/or the imposition of large fees by the asset manager, therefore

²⁷ Palacios (1998) correlates wage growth (a proxy for PAYG returns) with equity returns (a proxy for second pillar returns) for five OECD countries in the 1953-95 period, and obtains very low or negative correlation coefficients.

reducing the overall net return. An alternative, but equally undesirable outcome, would involve a very conservative portfolio selection by the asset manager and low returns for fund members.

The Hungarian construction for young workers is better in this regard, as it establishes a minimum real return of around 0 percent, computed over the whole working life. However, this construction introduces other problems, primarily the difficulty to link the guarantee with capital protection from asset managers/sponsors. This link can only be easily established when the minimum return applies to the level of the fund, not the individual. The Hungarian system tries to cope with this problem by also imposing a minimum annual return on the funds, relative to a market benchmark, but the reserve requirements are imposed on the pension fund itself (a non-profit mutual), not the asset manager. As mentioned before, neither of the two constructions places private capital explicitly at risk, nor defines the insurance premia on a risk related basis. The contributions to the central guarantee fund in both countries are flat, and around 0.4 percent of contributions in the case of Switzerland and Hungary.

Designing an absolute guarantee on second pillar benefits that reduces the exposure of individuals to market risk, is financially sustainable, and minimizes moral hazard, proves to be a very complex task. It would probably have to include the following elements: (i) a minimum return on individual second pillar contributions, applied over the working life. This minimum return would have to be sufficiently low to be sustainable and maintain the worker's interest to monitor his/her pension fund; (ii) a minimum performance obligation on the asset manager/sponsor. The minimum real return imposed on the asset manager would also have to be sufficiently low and computed over a relatively long period, say 36 rolling months or longer; (iii) the imposition of explicit, possibly risk-based, capital/reserve requirements on the asset manager/sponsor backing the minimum return; and (iv) the imposition of risk-based insurance premia on the asset managers/pension funds.

The complexity in design can be further appreciated by noting that it would not be easy to differentiate capital requirements and insurance premia according to risk. Attempting to establish a relation between capital requirements and insurance premia on the one side, and portfolio risk on the other side, could lead pension funds to avoid equity, contradicting some of the main objectives of a second pillar. The regulators could limit themselves to differentiating institutions according to capital strength and/or quality of management, but it is not clear the extent to which ratings heavily weighted by subjective evaluations by the supervisors would be accepted by the institutions.

On balance, absolute guarantees on second pillar benefits seem to raise more costs and complexities than benefits, and should generally be avoided, especially in countries where the private mandatory pillar is a component of a multi-pillar system, and accounts for less than half of contributions. If absolute guarantees are deemed as essential, they should be kept sufficiently low and computed over a relatively long period. These guarantees should be matched by explicit capital/reserve requirements at the level of the asset manager/sponsor. When a guarantee fund is created, consideration should be given to differentiating insurance premia, although the criteria for differentiation should be probably restricted to capital and quality of governance/management.

Multiple portfolios. As mentioned before, the introduction of more portfolio choices to workers provides an alternative mechanism to deal with market risk. The assumption underlying this solution is that workers will make informed portfolio choices, and will hold progressively lower shares of equity as they approach retirement. Under this construction, the workers are expected to bear fully the consequences of poor investments, and the Government is not expected to intervene if the outcomes are not favorable.

This construction is elegant in principle but not without pitfalls either. Evidence from 401(k) plans suggests that portfolio choices may not be optimal among several segments of the population—relatively large numbers of young workers seem to hold small amounts of equity and relatively large numbers of old workers seem to hold large amounts of equity. There is no reason to believe that workers in less sophisticated financial environments would make more informed choices. A complete

withdrawal of the Government in these cases is open to doubt. Moreover, given the long holding periods (30-40 years), it is not clear how large is the gain of a strategy that involves declining equity shares (say, from 80 to 20 percent of the portfolio), relative to a balanced portfolio (with 50-60 percent invested in equity) through out the holding period.²⁸

The strategy of multiple portfolio to deal with market risk faces one additional constraint in the case of new second pillars. It is generally recommended that new private pillars in emerging markets start with conservative portfolios and gradually build their holdings of equity and other riskier assets, as capital markets mature in depth and liquidity. Therefore, one cannot expect that young workers will be holding large shares of equity in the early years of implementation. Expecting the workers to hold less equity in the final years when they cannot hold large amounts in their first years implies a relatively low proportion of equity over the working life, which defeats some of the objectives of a second pillar.

Deferral of annuities. The deferral of annuities allows retiring workers to postpone the conversion of their accumulated balance into an annuity, thus preventing an unfavorable year to give rise to lower annuities. This is a measure which provides some flexibility without distorting incentives, and should be allowed under any regulatory framework. This measure has obvious limitations, however, as not all workers can afford postponing their annuities.

Variable annuities or sequenced purchase of fixed annuities. Variable annuities (or phased withdrawals) could allow workers to diversify market risk to a significant extent. Workers retiring in a bad year could experience a sharp recovery in the real value of their pensions during the retirement period, when markets would be expected to recover. Alier and Vittas (1999) show that variable annuities could raise significantly the minimum and average replacement ratios—in their simulations, the conversion of half of the final balance into a variable annuity could raise the minimum replacement ratio from around 22 percent to around 40 percent. The problem with variable annuities, however, is that they expose retirees to fluctuations in replacement ratios during the retirement period. One alternative solution to deal with market risk without exposing workers to fluctuations in replacement ratios is the gradual purchase of fixed annuities (e.g. five annuities, purchased gradually five years before retirement). This solution would also raise the minimum replacement ratio and reduce dispersion, although its effects would be much smaller in comparison with variable annuities.

In sum, most attempts to limit market risk may cause more harm than benefits, and should be generally avoided, or very cautiously introduced. Among the potential options available, allowing deferral of pensions and developing different annuity packages are probably the ones with the least negative side-effects. Multiple portfolios may prove an elegant construction for voluntary pillars in sophisticated financial systems. Their introduction in mandatory pillars in less sophisticated financial environments requires a more careful evaluation of costs and benefits. Absolute guarantees raise even more substantive questions, excepting for guarantees which are limited to fraud and theft. When absolute guarantees are introduced, regulators should ensure that the guarantee is sufficiently low and backed by the capital of asset managers/sponsors, particularly in the cases where there is also a central guarantee fund. In these cases, regulators should explore the scope for introducing risk-based insurance premia, but the criteria for differentiating premia should not distort portfolio strategy to the detriment of fund members.

4.3. *Improving the Regulatory Framework: Other Lessons*

Portfolio Diversification. Pension funds which are restricted to a narrow range of investments may find themselves with excessive holdings of a few asset categories and greater vulnerability to real and financial shocks. Therefore, before considering the introduction of guarantees and other measures

²⁸ Alier and Vittas (1999) show that a gradual switch into bonds five years before retirement would not reduce significantly differences in replacement ratios across cohorts.

to deal with market risk, policy makers should ensure that the potential for portfolio diversification is fully explored.

Means of limiting this risk lie in the adoption of less restrictive investment regimes, when the development and security of capital markets establish conditions that make it feasible. Unlike banks, pension funds have much longer investment horizons and fewer liquidity constraints to limit their capacity to manage risk through broad diversification. Permitting limited entry into market segments (i.e., foreign equities, venture capital) that offer the potential for increased yields and cross segment diversification, provide a potential to avoid exposure to the kind of crises banking systems have experienced. However, it is also clear that permitting these investments would need to be contingent on utilization of risk management strategies that would complicate the job of regulators. A careful phasing of the relaxation of restrictions and the imposition of hedging requirements would be critical to the success of such an approach.

Valuation and Auditing. Even regulatory regimes that involve intensive supervisory activities and afford authorities the capacity for rapid interventions, must ultimately rely on reliable and consistent valuation methods and an efficient auditing function. The value of the most technical and restrictive approach to the control of assets is only as good as the valuation and verification methods that are used to support them. Some of the recent problems in banking system have arisen out of lax controls on the activities of auditors and allowing assets to be carried at dubious values. Even the high levels of supervisory oversight have been unable to fully address this problem, in some cases because of collusion between auditors and management officials and in others due to the lack of competence among auditors.

This issue is potentially of even greater concern in the oversight of pension funds, because of the direct linkage between members and the assets backing their individual accounts. There are some useful lessons from banking regulation that may find application in the pension industry. One lesson relates to the degree of independence of auditors from management. In order to avoid that the quality and integrity of the auditing function be diminished by interference from the management of pension funds or asset managers, it would be useful to introduce an obligatory rotation of auditors, make external auditors directly accountable to the boards, as opposed to management, restrict the ability of management to fire the auditor without board approval, and force the auditor to report to the supervisor the reasons for his resignation or firing. The second lesson deals with the integration of external auditing in the supervision process. Supervisors should be empowered to influence the scope and depth of the external audits, and have full access to all the audit results. The third lesson deals with the legal liability of external auditors. The potential power of external audits in the valuation and monitoring of funds' activities, is only realized when auditors face clear penalties for failing to discharge their functions, and these penalties are enforced.

Countries that introduce new private pillars must make a special effort to develop the audit profession and improve its regulation. Developing a reliable external audit function may take time, and in these cases most of the burden of the monitoring of pension funds may have to fall on the supervisors. However, it is important to ensure progress in this area, in order to spread the burden of supervision more evenly over time. Developing the external audit function is even more important in countries envisaging hybrid systems, i.e., systems combining open and occupational-based funds. Hybrid systems may provide more competition to open funds and help contain costs, particularly marketing costs, but they also involve a larger number of players, stretching the capacity of the supervisor even further. In these cases, effective supervision will require a developed audit function and its close integration with supervisory processes.

Regulation of fees. There is a debate on whether regulation of the level and/or the structure of fees have a significant impact on marketing activities and the switching across funds. Recommendations to solve the problem range from capping fees and marketing costs, to a complete deregulation of the structure of fees (Vittas (1998)). It remains to be seen if manipulation of fees in the industry can make a fundamental difference in behavior and performance. The result of capping

fees may be a clustering of fees at the caps with all consumers effectively paying the maximum allowable rate. An associated problem may be a lack of transparency in fees.

Reducing the intensity of marketing activities and the large marketing costs may require a more fundamental change in the industry's structure. In a pension system, this could be accomplished through mixed or hybrid approaches, incorporating voluntary private alternatives, either individual or employment based, and facilitating the entry of occupational schemes in the second pillar as well.²⁹ Greater participation of occupational schemes in both the voluntary and mandatory pillars, and the greater threat of entry by these institutions, could increase the market contestability that the industry in some countries seems to be lacking. Needless to say, this would require changes in the regulatory framework to accommodate the existence of two or more different types of institution.

While it is relatively simple to recognize the potential benefits of a transition from a restrictive to a hybrid system, effectuating such a transition also imposes risks and challenges. An evolution of this nature is analogous the deregulation of financial institutions, including banks, that remains ongoing in many countries. One of the key lessons obtained from the experience of banks is that such a transition, especially when attempted as a rapid response to structural problems, is often poorly planned, and may lead to many unintended consequences, including failures and crisis.³⁰ The lesson to be derived from this for pension is that a transition to a hybrid, more competitive and less strictly regulated system needs to be undertaken only after the transition of regulatory and supervisory systems in fully considered and planned. It would be advisable for countries to consider such a transition at the outset of a reform (see below).

4.4. Building Supervision Capacity

Bank regulatory agencies tend to be large and expensive to operate, relative to other types of regulatory and supervisory agencies. This is due to the complexity of the supervisory tasks, in conjunction with the highly pro-active nature of their supervisory activities. These costs may be directly paid through the assessment of fees on all institutions or more broadly imposed by assignment to general budgets. Bank regulators will have several full time staff for each entity they oversee, and the highly technical nature of the work makes these relatively expensive personnel. Pro-active supervisory approaches are heavily reliant on the provision of frequent reports and a greater number of interventions, and these also impose other costs on the supervised entities.

Pro-active supervision in banking has emerged as result of banking crisis and failures, and attempts to identify and correct problems at an early stage, before they become too large and costly to solve. However, pro-active supervision itself can be costly. Pro-active and interventionist systems are sometimes also criticized for not accommodating to the pace of change and innovation in modern financial markets. Moreover, even pro-active approaches have not been able to avoid episodes of bank failures. These failures have been partly due to regulatory forbearance caused by political pressures. However, there is also a growing awareness that pro-active supervision cannot be a substitute for good corporate governance, competent management, and a more continuous monitoring of the institution by other active market players.

²⁹ As pointed out by Vittas (1998), the discussion of hybrid systems also raises the issue of whether the second pillar mandate should be shifted from the employee to the employer.

³⁰ As bank rates and lending and investment restrictions were rapidly deregulated in the United States, there was not a concurrent modernization of the regulatory process. Left with long term low yielding assets many banks became overextended in new speculative areas to compete for deposits contributing to many failures before regulatory systems were restructured to reflect the new realities. A recent study of Japan (Hoshi and Kashyap, (1999)) concludes that a timing mismatch in the deregulation of banks has played a major role in the current banking problems.

As mentioned in section 2, the philosophy of banking supervision has been evolving in most developed countries, from a strict and narrow approach focused on the monitoring of quantitative regulations, to assessment of the banks' risk management capacity, and development of means to transfer more responsibility to other market players. This has required, *inter alia*, efforts to improve the overall legal and institutional framework, clarify the duties and responsibilities of board members, improve disclosure, enhance the role of non-insured depositors, and strengthen the external audit function. The pension industry in some countries may face similar challenges.

Emerging countries implementing mandatory systems may conclude that it is inevitable to introduce pro-active supervision policies in the first stages of reform implementation. This is because these countries still do not have the legal and institutional structures required for a more decentralized but also reliable supervision mode. However, the supervisor should have as long-run objective the strengthening of the institutional mechanisms that would allow a more distributed burden of supervision in the future. In addition to strengthening the areas of regulation identified above, there are other interesting measures that could be considered. For example, requiring statements of investment policy objectives, as apparently required from pension funds in the new mandatory system in Hong Kong, may prove a useful tool to promote better risk management techniques by pension funds/asset managers (Vittas (1998)).

The need to start the reforms with more pro-active supervision policies may imply the need to restrict entry initially and limit the number of institutions to a manageable size. However, the regulatory framework should not prevent the entry of employer-based schemes, but rather limit entry through the imposition of minimum number of members and other professional requirements. Maintaining a credible threat of entry is essential, as it may help impose discipline and contain costs, especially marketing costs, even if the system has relatively few institutions initially.

Increasing the number of players raises many additional issues, particularly the issue of economies of scale and scope. It is sometimes argued that increasing the number of players may improve competition but also produce inefficiencies in scale. There is a misunderstanding in this area, because small and medium size funds in the OECD primarily outsource the administration and the management of their assets. The asset management industry is more consolidated and may well be scale efficient. Of course, expanding the number of funds and restricting severely the number of asset managers may yield little results. However, the asset management industry is in general a competitive industry, and it is easy to attract new entrants into the industry.

Increasing the number of players does not mean aiming at a very fragmented structure, such as the one observed in most OECD countries (Table 1). The target number should probably be at the order of dozens or hundreds, not tens and hundreds of thousands, as in most OECD countries. A very fragmented structure may indeed create problems in costs and compliance, despite the outsourcing of tasks by smaller institutions. What should be the total number of players and the minimum size required to obtain a license are important questions that are not addressed in this paper. More empirical research on scale and scope economies in the pension industry, and other related industries would provide useful inputs to pension regulators.³¹

Table 1: Number of Banks, Pension Funds, and Asset Managers in Selected Countries

Banks	Pension Funds	Asset Managers
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³¹ There have been many studies of scale and scope economies in banking, but the authors are not aware of similar studies for the pension industry. The empirical literature on banks generally concludes that the average cost curve is relatively flat, with scale inefficiencies for both the smallest and largest banks. There is substantial disagreement on the minimum efficient scale of production, and the results seem to vary significantly according to the specific sample. There is no consensus on the existence of scope economies. Clark (1996) provides a brief survey of the literature.

Chile	28	8	8
Argentina	83	13	13
Hungary	43	32 in 2nd pillar 240 in 3rd pillar	45
Poland	83	19 in 2nd pillar 10 in 3rd pillar	29
Czech Republic	50	38	n.a.
UK	468	Hundreds of thousands	n.a.
US	10956	c.a. 700,000	n.a.
Australia	50	c.a. 150,000	n.a.
Switzerland	394	c.a. 11,000	Hundreds
Netherlands	99	c.a. 21,000	Several hundred
Ireland	71	c.a. 64,000	18

Sources: OECD (1999), Bank Supervision Agencies in Several Countries .

Independence of Regulators. Higher levels of regulatory and supervisory authority in conjunction with the concentration of the industry in a relatively small number of actors requires insulation of the regulator from political pressures. When faced with a crisis in the financial sector, political leaders have often brought pressure on bank regulators to engage in policies of forbearance or to delay interventions. This has occurred in response to the attempts by owners and shareholders to protect their interests, but also by politicians' desire to limit the perception of crisis at crucial junctures. The result has often been to ultimately make problems deeper or more costly when they finally are addressed.

While this has clearly been an issue with banking regulators for some time, it is also of concern for the regulation of pension funds. Although pension funds are much less subject to systemic runs and failures, they may well be subject to political pressures to invest in Government paper and other sectors favored by the Government. The regulator may be induced to tailor the investment guidelines to these objectives, or may be pressed to ignore the violation of existing regulations. The regulators may also be pressed to postpone intervention in pension funds subject to fraudulent practices. Insulating the regulator from these pressures is of paramount importance, and in many cases requires establishing an independent institution with clear board responsibilities and terms independent from the political cycle. Ensuring independence in pension supervision is in some respects even more important, because it is more difficult to design "prompt corrective action" rules similar to those applied to bank supervisors, at least in the case of DC schemes.

The need to coordinate the activities of pension supervision with other supervision agencies is another issue that is in the agenda of regulators in many countries. Pension fund supervisors have to rely in the supervision of many other sectors of the financial system, and this is performed by different agencies. Although the need for coordination is clear, some legal systems restrict even the flow of information among supervisors, on the presumption that sharing of information would violate private secrecy rights.³² As a minimum, the legal framework should allow supervisors to share information, and even promote co-ordination by having the chief supervisors of different agencies participating in each other boards, or creating a commission of capital market supervision comprising the head of each supervision agency. A more structured solution would involve a fully integrated supervision agency, such as the one recently implemented in the UK.

5. Summary and Conclusions

³² This problem is common among Central and Eastern European countries. After several decades under communist rule, the legal reforms in the early 1990s placed great importance on individual rights, sometimes going beyond the levels of secrecy protection in Western countries and imposing difficulties to supervision activities.

The objective of this paper was twofold, to review the literature on the regulation of the bank and pension industries, and to identify possible improvements in the regulation of the pension industry, in light of developments in banking regulation in the recent decades. The paper stresses the fundamental differences between banks and pension funds, and the fact that many of the regulations in banking cannot be easily transplanted to the pension industry, or are simply not applicable to the industry. However, the paper also identified a number of other regulations that may find application in the industry.

The review of banking regulation and supervision reveals a number of developments in the recent decades. Most of these regulatory developments have been motivated by the efforts to counteract the moral hazard effects of deposit insurance, and the political interference in the supervision process. Whereas no country has removed deposit insurance, there have been increasing efforts to improve market discipline by, *inter alia*, limiting the scope of insurance, enhancing the role of uninsured creditors, and introducing risk-based capital requirements and risk-insurance premia.

There is also a growing awareness that even the most pro-active supervision agencies cannot bear all the burden of bank monitoring. The philosophy of supervision has been changing, from a narrow verification of compliance with quantitative regulations, to a broader assessment of the quality of corporate governance and the institutions' capacity to manage risks. There have been equal efforts to spread the burden of supervision more equally among market players. This has required, among other factors, strengthening the roles of boards and the external audit function, and ensuring that their duties and responsibilities are enforced. Some countries have also made efforts to reduce the room for political interference and regulatory forbearance by introducing "prompt corrective actions" by the supervisors. The organization of supervision is being subject to review, and some countries are integrating their different agencies into a single agency.

In reviewing the literature on pension funds, the paper draws attention to the great variety of pension fund structures across countries. The paper concentrates on the two major models, however: open funds operated by separate management companies, and occupational-based trusts/foundations/mutuals. The paper identifies prudential regulations that are applicable to both models, but stresses that the same regulation is frequently adapted to the specific model, and that some regulations are entirely model-specific. Regulations common to both models include asset segregation rules, the imposition of independent custodian and external audits, disclosure requirements, and portfolio diversification rules. There are some differences in disclosure requirements between the two models, and marked differences between investment requirements between models, and even between countries following the same model.

Some countries have introduced guarantees on second pillar benefits that raise important issues related to viability, costs, and incentives. Relative guarantees are generally not very ambitious and do not seem to have caused financing problems or induced moral hazard. However, they are blamed for the intense herding behavior in the countries adopting these guarantees. Absolute guarantees raise more substantive questions about sustainability and incentives. The few countries that have adopted them have not reported major problems, possibly because there are other, more informal channels, linking the guarantee with the capital of the sponsors. However, a more explicit legal base is still lacking in these countries.

The paper stresses the marked differences in the approach to supervision in the two models. Countries adopting the open fund model have introduced a very pro-active supervision agency, which generally establishes strict entry criteria, and is tasked with monitoring the compliance with detailed disclosure requirements and investment regulations by a limited number of licensed funds. Countries that have historically adopted the occupational model follow a reactive supervision approach, largely because of the much larger number of institutions. The reactive model has proved functional, but requires a level of institutional and legal development that many emerging countries do not have at the present time.

There are no studies providing a detailed comparison of fund performance in the two models. The average returns of occupational-based pension funds in several OECD countries have been comparable or higher than the returns of Chilean funds, whereas the average returns in other OECD countries have been lower. The differences in returns seem to be more due to differences in regulation than model-specific. Countries following the prudent man rule seem to have achieved higher returns. Occupational funds seem to operate with lower costs than open funds, particularly because of the absence of marketing costs, but again there are no detailed and comprehensive studies of costs. Some papers in the literature also indicate the possibility for promoting hybrid models, in order to enhance competition to open funds and reduce marketing costs.

The main section of the paper tries to examine whether there is scope for improvements in pension regulation. The section starts by examining worst case scenarios involving financial crisis, while also pointing out the smoothing effects of long asset holding periods, and the fact that multi-pillar constructions already contain an element of risk diversification. However, the paper recognizes that private funded systems will always be subject to market risk, and examines five possible solutions to deal with this risk, including DB schemes, absolute guarantees, multiple portfolios, pension deferrals, and the introduction of different annuity packages (including variable annuities and sequenced fixed annuities).

This section points out that most attempts to deal with market risk may introduce complications and negative side-effects. In this regard, the paper indicates that pension deferrals and the introduction of different annuity packages are probably the best options to deal with market risk, while absolute guarantees are the option that may cause most damage. The paper recommends that absolute guarantees be avoided, while also providing more specific suggestions for design in the countries where they are introduced. These include keeping the guarantees low, putting private capital (of sponsors and asset managers) explicitly at risk before granting access to a central guarantee fund, and introducing risk-based insurance premia.

The paper identifies other possible lessons from the banking industry. These include the need for more flexible rules aimed at enhancing portfolio diversification, and strengthen governance rules in general, including the duties and responsibilities of boards, and the scope and responsibilities of external auditors. The paper stresses the need to achieve progress in these areas in order to spread the burden of supervision more evenly among a larger number of players.

Finally, the paper explores some of the issues that would have to be considered in introducing hybrid models. Countries introducing mandatory pillars should restrict entry initially to a number of institutions that the supervision agency can supervise effectively. However, the regulatory framework should allow both open and occupational funds, and restrict entry only on the basis of minimum size and other professional requirements. Maintaining a credible threat of entry might be important even in the early stages of reform implementation. Ensuring further institutional and regulatory development over time might allow the supervisor to distribute the burden of supervision more evenly among other market players, and facilitate the entry of additional institutions. The strengthening of governance and the capacity of the system to manage risk is essential, as it allows regulators not only to relax entry and reduce costs, but also to introduce more flexible investment rules and create opportunities for higher returns.

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