TOWARDS BETTER REGULATION OF PRIVATE PENSION FUNDS

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Abstract

This paper critically examines the typical model of investment regulation of private pension funds. The pension system reforms pioneered by Chile are being initiated or considered in many countries including Argentina, Colombia, Mexico, Peru, Bolivia, Costa Rica, Uruguay as well as China, Hungary, and elsewhere. These reforms greatly improve fiscal discipline, make social security burden and benefits equitable, and deepen financial markets. However, these reforms are also typically accompanied by very tight investment restrictions on pension fund portfolios, restriction of management of mandated retirement savings by newly created legal entities called pension administrators to the exclusion of all existing financial intermediaries such as banks and mutual funds, minimum return guarantees from the state and/or pension funds, and commissions based on salaries rather than assets managed. We show that while well-meaning, these restrictions are poorly justified by financial theory, distort incentives for competition based on product choice and efficiency, increase administrative costs, and seriously reduce appropriate risk-return choices and returns of the affiliates. The potential losses of retirement income are very large. These conclusions are illustrated with case studies of Chile and Peru.

The paper recommends a significant departure from the Chilean-style private pension fund system model. It argues in favor of permitting diverse intermediaries -- including banks and mutual funds meeting appropriate prudential standards -- to manage retirement savings, greater choice of investment products, requirements of reporting returns on a net basis and charging commissions as a fraction of assets managed. The paper briefly describes implementation and transition issues for this alternative system.

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1. Introduction and Summary

In 1980, Chile passed the Decree Law 3500, partially replacing the state-run pay-as-you-go (PAYG), unfunded social security system with individually capitalized accounts in pension funds managed by private administrators. The seminal reforms have made a large contribution to Chile's economic performance since and inspired many other countries to follow suit. Similar reforms have been initiated or are being actively considered in Argentina, Colombia, Mexico, Peru, Bolivia, Costa Rica and Uruguay as well as in China, Hungary, and elsewhere. Annex I compares the basic features of the social security reforms for Chile, Argentina, Colombia, Peru and Mexico. While the reforms vary from country to country in terms of whether the affiliation to the privately managed funded system is voluntary or mandated, the level of contribution to the private system, and the continuation of coverage under the public supplemental social security systems; there are substantial similarities in the design and regulation of the private pension funds.

The Chilean reforms have been greeted with widespread praise (Vittas and Iglesias (1992)). They represented a decisive act on the part of a developing country to recognize the dangers of unfunded and mushrooming social security obligations of the government and discipline this process. The pension fund assets have grown steadily and accounted to over 40% of the GDP in 1995, while the annual savings of the system amounted to 19% of national savings (Chilean Pension System). The pension reforms have made an important contribution to restoring equity in social security burdens and benefits, improving fiscal discipline, the growth of equity and bond markets, savings formation, and quite possibly to the remarkable economic performance of the Chilean economy since the early eighties.

Mandatory retirement savings can provide substantial social security if they meet three requirements: (i) an adequate level of contributions relative to salary, (ii) funding of savings to avoid the principal-agent problems of the PAYG systems, and (iii) a respectable level of real returns on savings. Table 1 illustrates the typical calculus of such systems. With contributions of 10% of salary, workers joining the system at the beginning of their working career will accumulate equivalent of 8-10 years of annual retirement age salaries, which would suffice to pay replacement rates of one-half to two-thirds of terminal salaries during retirement years.

Table 1 : Wage Growth, Investment Returns, and Replacement Rates[1]

Annual Real Wage Growth (%)	Annual Real Return on Assets (%)	Retirement Acct. Balance/ Annual Salary at Retirement (years)	Replacement Rate with a 20-year Annuity (%)
3	7	9.89	65
2	5	7.81	51
2	6	9.89	65

Note: [1] Based on the assumptions that the affiliates save 10% of salary over 40 working years in a personal retirement account, wages and assets grow at above rates, and at retirement the account balance is converted into a 20-year annuity, earning 3% real return. All contribution and annuity payments are annual and made at the beginning of the year.

Other things equal, low wage growth, high contribution rates, and high asset returns would raise the value of retirement pensions. The policy makers in developing countries face important constraints in setting high contribution rates and transferring all of the previous social security taxes into private pension funds. These limitations and the likelihood that mandated personal retirement accounts will tend to dominate financial investments and quite possibly all personal wealth, underscore the importance of optimizing the efficiency of investments. This paper analyzes the typical investment-related regulation, its effect on long term return optimization, and attempts to identify possible improvements.

As private pension systems are typically defined contribution plans and the affiliates assume most of the investment risks, we take the affiliate's perspective, and investigate possibilities for improving the affiliate's risk-return tradeoff, considering the career-long investment horizons. To do so, we examine the effect of investment regulations on the portfolio composition of pension funds and thus the aggregate return, the appropriateness of the portfolio for the affiliate, the degree of competition and efficiency in managing pension assets, and the costs of investment management services. Again applying the perspective of the affiliate, we examine these issues against the standards of efficiency of intermediation, choice of investments, and degree of prudential regulation implicit in regulation of voluntary savings management.

Chilean-style mandated private pension systems are hybrids incorporating elements both of a state-directed system and private savings management. They relate benefits to savings, actually invest the savings, permit private managers to manage funds, and offer the affiliates choice of managers. These are substantial improvements over actuarially bankrupt, underfunded, or highly unequal PAYG systems. Yet, investment regulations merely seeking to improve upon PAYG systems may well set low standards of performance for private managers. The mandated savings accrue over long periods, into a large fortune. During this process, the affiliates bear significant investment risks and undergo considerable changes in their risk taking capacity. Thus their welfare would depend on the appropriateness of investments to their varied situations, the level of competition between investment managers, and their incentives to attain cost efficiencies and share the resulting gains with the investors.

In Chile and elsewhere, the regulations create a new intermediary (the pension fund administrator), a new regulator to license and oversee them, and a rather special regulatory structure. The administrators face extensive restrictions on investments. They must guarantee a return within a certain band of the average return of the industry, if needed, through their personal resources. The administrators can offer only one fund[2], the affiliate can invest in only one fund. Existing banks, mutual funds, or insurance companies cannot manage mandated savings. Transfers between different pension funds are somewhat restricted with minimum stay periods and transfer fees. The fund administrators can charge fees as a percentage of salary (which is typical) and of the assets managed, as well as flat transaction fees for deposit, withdrawal, account statement, etc..

How well do these regulations serve the affiliates? We find that the net returns to the affiliates in most countries are negative or negligible over the first 4-5 years, and do not beat returns from simple investments such as bank CDs, over the long haul. The regulation seems to create profound biases against competition, efficiency, specialization, or and in favor of excessive direct marketing expenses. The resulting losses, even if small, can seriously endanger the retirement nest egg, while subjecting the affiliates to inappropriate risk-reward tradeoffs in the interim.

We attribute these problems to well-meaning but counterproductive investment regulation. First, the direct investment restrictions on portfolio decisions of pension fund managers cannot be easily derived from disciplined models of financial economics. They seem to limit investment universe considerably, result in poor portfolio decisions for long term disciplined savings, and generally poor risk-reward tradeoffs. Second, the Chinese walls around the pension fund industry protects the fund managers from competition from other financial intermediaries and products, encourages larger marketing and set-up costs, and denies the affiliates investment vehicles better suited to their needs. While designed to protect the affiliates, guaranteed return within certain bands actually encourage investment in identical portfolios, thus eliminating specialization in investment management. Finally, the commission structure and reporting of gross rather than net returns allows exaggeration of true returns, making comparison of performance with the mutual funds and others difficult.

These difficulties and the need for a better investment regime are beginning to be recognized, particularly in Chile and Peru. Yet, the dominant influence of the Chilean design, the complexity of social security reforms, and the need for legislative actions to fix several problems result in rather slow curative action among the older reformers while the same design flaws are replicated elsewhere. We propose an alternate model based on personal retirement accounts. The basic intuition of such design is that while mandated

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[2] In Mexico, the law envisages creation of two funds -- an equity-oriented fund and a fixed income fund by each administrator, though the regulation initially permits only investment in the latter initially. In Chile and Argentina, the administrators operate only one fund but additional deposits of voluntary savings are permitted.

savings *originate* differently from voluntary savings, in defined contribution plans, their *investment* does not call for a fundamentally different financial industry. Participation by existing financial intermediaries would further the cause of social security, by injecting greater investment choice, competition, marketing approaches, and cost efficiency. We examine some of the political, equity oriented, and technical arguments for favoring the traditional Chilean-style model (hereafter, referred to as "AFP model") and find that they are largely refutable and that the proposed alternative should be seriously considered.

The paper is organized as follows. The second section briefly describes the Chilean and Peruvian pension fund systems and selectively examines their investment performance. Section 3 discusses the regulators' difficulties in prescribing meaningful investment restrictions in a simple Markowitz framework for optimum portfolio selection, and argues for substantial relaxation of investment constraints. Section 4 discusses regulatory incentives for competition, or the lack thereof, in the typical Latin American social security reforms. Section 5 discusses the typical commission structure and its effects on costs, competition and efficiency. Section 6 discusses the potential losses of social security arising from long term efficiency losses from inadequate competition. Section 7 discusses the alternative approach based on Personal Retirement Accounts. Section 8 deals with some of the implementation and transition issues and criticisms of the alternative. The final section summarizes conclusions and recommendations.

2. Performance of Chilean and Peruvian Systems

The Case of Chile

Background. In September 1996, the Chilean pension system consisted of 15 *Administradores de Pensiones* (AFPs)[3]. The system started in 1981. The number of AFPs reached a peak of 21 in early 1990s and has been falling since. Participation is mandatory for all employed workers and voluntary for the self-employed. The workers received recognition bonds in lieu of their accumulated contributions and benefits under the state-run PAYG system, but otherwise the state-owned system is terminated. By 1995, the system had 5.3 million affiliates and 3.0 million contributors (the rest being retirees, irregular self-employed contributors, unemployed, and workers whose payments are delayed). Each AFP can manage only one account, and each worker can maintain only one account with an AFP. Account transfers are restricted to three per year, and there was a bill pending in Congress in December 1996 proposes to restrict them to once a year. Since August 1987, AFPs have been also allowed to accept deposits of voluntary saving in the so called second accounts, which are also invested in the same portfolio, but can be withdrawn prior to retirement. A substantially different tax regime applies to voluntary savings.

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[3] This section is largely based on "The Chilean Pension System", second edition, by the Superintendency of the Pension Funds Administrators.

Minimum Return Guarantee from the AFP. Each month, each AFP must ensure a minimum return equal to the lower of average return of all AFPs for the last 12 months minus 2%, or 50% of the average industry-wide return. Returns in excess of 150% of industry average or the industry average plus 2% can be placed in a Yield Fluctuation Reserve. In addition, the AFP must create a Cash Reserve equal to 1% of assets managed. These reserves, in that order -- and if they are insufficient, private resources of the AFP -- must make good any shortfalls below the minimum.

Investments. Investments in pension funds are tightly controlled (see Vittas and Iglesias for an extensive discussion). In particular, equity investments were not permitted until 1985, were limited to 30% of the fund's assets over 1985-95 and since 1995 are limited to 37%. The law and regulations prescribe maximum limits on different classes of instrument, rating requirements for most interest-bearing securities, limits on maximum holding of securities of one issuer, limits on individual issue of any instrument, limits in terms of the share of the capital of the issuer in the sector and limits in terms of share of the pension fund in total pension fund assets. In addition, investment in individual securities such as equities must be weighted by liquidity factors and concentration factors. While the limits have been gradually revised upwards, the structure still contains many more rules than necessary for simply achieving diversification. In addition, new classes of assets cannot be added by pension funds as they become available, and must await approval by the Superintendent.

The requirement of ensuring minimum returns relative to the industry average strongly induce the AFPs to invest in identical portfolios, as can be seen in Table 2. As the contributions are mandated, the affiliates cannot influence portfolio composition by voting with their feet.

Table 2: Absence of Diversification of Investments Across Chilean Pension Funds

	Government Bonds	Mortgage Credit Bills	Bank Instruments[1]	Equity	Corporate Bonds
Average of All Funds	39.41%	16.79%	5.32%	29.37%	5.11%
Standard Deviation	4.33%	3.87%	2.91%	1.61%	1.70%
Variability Coefficient	0.110	0.230	0.547	0.055	0.333

Notes: [1] Term Deposits and Promissory Notes issued by financial institutions.
Source: *The Chilean Pension System*.

Commissions. There are no limits on the level of commissions. Initially, the AFPs were free to charge fixed and variable commissions based on salaries and account balances, as well on commissions for each deposit, withdrawal, etc.. Fixed and variable commissions based on balances have been abolished since 1987. Aggregate commissions, including insurance costs, increased from 5.1% of average taxable salary in 1982 to 8..27% in 1983 and 8.69% in 1984, fell gradually to around 3.1% of salary by 1990, and have been stagnant since.

Performance of the Funds. Table 3 shows the average income of all contributing salaried and self-employed affiliates, their average gross commissions, net

commissions after deducting expenses of death and disability insurance, real returns (only real returns are relevant and available given pervasive indexation of financial and other contracts in Chile) on investments, and the internal rate of return on pension fund for an affiliate that participated in the system from 1982 onwards, based on both the amounts credited to his/her individual account as well as the commissions paid to the AFPs, but ignoring death and disability premia.

Table 3: Chilean Pension Fund Returns Net of Commissions

	Monthly Income Ch$[1]	Annual Contribution @ 10% of income[1]	Gross Commission % of avg. income	Net Commission % of avg. income	Commission Ch$[1]	Contribution and Net Commission[1]	Pension Fund Real Returns without Fees[2]	Year End Assets Managed[1]	Annual IRR to date[3]
1982	117221	140665	5.10%	3.31%	46560	187225	28.8%	18117	-3.2%
1983	98995	118794	8.27%	5.50%	65337	184131	21.3%	363865	-1.3%
1984	93974	112769	8.69%	6.38%	71946	184715	3.5%	493316	-5.9%
1985	122197	146636	6.68%	4.43%	64960	211596	13.4%	725705	-2.3%
1986	122910	147492	6.05%	3.89%	57374	204866	12.3%	980601	0.3%
1987	117679	141215	5.49%	3.42%	48295	189510	5.4%	1182394	0.5%
1988	113357	136028	4.00%	2.09%	28430	164458	6.4%	1402801	1.4%
1989	137616	165139	3.55%	1.85%	30551	195690	6.9%	1676128	2.1%
1990	141237	169484	3.15%	1.93%	32710	202195	15.5%	2131682	4.2%
1991	151718	182062	3.10%	2.06%	37505	219566	29.7%	3000926	7.9%
1992	163315	195978	3.07%	2.13%	41743	237721	3.1%	3296008	6.9%
1993	175279	210335	3.07%	2.28%	47956	258291	16.2%	4074370	8.0%
1994	199972	239966	3.05%	2.28%	54712	294679	18.2%	5099546	9.1%
1995	204575	245490	3.06%	2.36%	57936	303426	-2.5%	5211410	7.4%
						Simple average = 12.7%			

Notes: [1] Amounts are in December 1995 Chilean Pesos.
[2] Real returns on investible assets for each year without adjustment for fees and commissions.
[3] Internal Rate of Return reflects the IRR up to the corresponding year.
Source: Superintendent of Pension Fund Administrators, June 1996; D. Vittas, A. Iglesias, WPS 867, February 1992.

Table 3 shows that the *Chilean AFPs* earned an average annual return of 12.7% during 1982-95, and the average return in the first five years was a spectacular 15.9%. But factoring in the commissions charged by the AFPs into this calculation, the internal rate of return *for the affiliates* was negative for the first four years and barely 0.3% p.a. after five years. Thus an affiliate who joined the system in 1982 virtually failed to earn any returns on her investments for five years, despite rather spectacular gains on her investment portfolio! The results are rather similar when comparisons are made for different years as can be seen from Table 4. Over 1982-95, the net real return for the average affiliate was still high at 7.4% p.a., but substantially lower than the 12.7% p.a. average real return on investments. Thus, expenses of the AFPs have consumed an average 5.3 percentage points. of the assets managed.

Table 4: Internal Rates of Returns v. Average Real Pension Fund Returns under Selected Investment Horizons

	Affiliate Joined in 1982	Affiliate Joined in 1986	Affiliate Joined in 1991
	Avg. of	Avg. of	Avg. of

	IRR[1] to date	Real Fund Returns[2]	IRR[1] to date	Real Fund Returns[2]	IRR[1] to date	Real Fund Returns[2]
After 5 Years	0.3%	15.9%	1.6%	9.3%	2.1%	12.9%
After 10 Years	7.9%	14.3%	6.6%	11.1%		
After 14 Years	7.4%	12.7%				

Note: [1] Returns reflect the IRR up to the corresponding year.
[2] Annual average of the Real Pension Fund returns without the effect of fees or commissions for the corresponding time period.
Source: Superintendent of Pension Fund Administrators, June 1996; D. Vittas, A. Iglesias, WPS867, February 1992.

Clearly, as a form of financial intermediation, privatized pension systems seems rather expensive not only in the initial period of affiliation, but also over the entire 14 year period. The implications of this are particularly disturbing for other countries, since the performance of the Chilean economy has been exceptional during this period. Other countries such as Argentina, Peru and Colombia who are encouraging, rather than forcing as in Chile, participation in the privatized system will undoubtedly face greater challenges in convincing the workers to join the privatized system if their capital seems to erode rather than grow in the initial period.

Costs and Efficiency. While the average cost for a contributing affiliate over 1982-95 seems rather high based on available data, it may be somewhat overstated for several reasons. The average cost data published by the Superintendency are highly processed, and some experts have suggested possibilities of errors (which were raised with but not confirmed or denied by the Superintendency). Also, while above costs are correctly interpreted for contributors, contributors subsidize non-contributing affiliates to the extent no fees are charged on balances maintained, as is the case in Chile since 1987. However, during 1982-86, the AFPs did charge fixed and variable fees based on the balance as well as on new contributions; thus, during this period, such distortions are relatively smaller. Also, the self-employed who contribute more irregularly than the salaried affiliates, and the holders of voluntary savings accounts (some 961,000 who hold only 1.3% of total funds) who don't pay any commissions "free ride" compared to the regular affiliates. Pension funds also pay retirement, death and disability pensions, but they charge a separate commission for this. Pension recipients have grown from zero at the initiation of the system to 289,452, still only 5.5% of the affiliates.

AFPs incur some expenses in following up missing or misapplied payments. Such costs cannot be isolated from available system-wide data, but perhaps are not an important factor. Collection problems, presumably worse in the earlier periods, do not appear to be a major problem now. Aggregate uncollected payments (including those where the employer admits obligations but has not been able to pay, where the amount reported as paid exceeds actual payment (due to clerical errors), and amounts unreported and estimated to be unpaid by the AFPs) amounted to 2.5% of the value of the funds in 1990 and fell to 1.1% by 1995. A sample study by the AFP industry in 1990 estimated the causes of non-payment as temporary or permanent, voluntary or forced unemployment (in 41.5% of cases) and self-employed with no income statement (36.5%) for whom

participation is voluntary. Of the remaining 22%, only 4% did not contribute on account of employer delays.

While the above factors suggest much caution in inferring efficiency from average costs and the need for further analysis of disaggregated cost data, there is much more direct evidence and literature acknowledging that collectively AFPs have incurred rather large set-up and direct marketing costs, and passed them on to their clients. It also seems clear that regulation has permitted and indeed contributed to such a strategy by mandating savings (which deny the possibility of clients withdrawing savings from inefficient intermediaries) and limiting competition from existing intermediaries who would have smaller set-up costs and presumably a different marketing orientation. For instance, according to the Chilean Superintendent of Pension Fund Administrators, [4]

> "from 1982 to 1983, AFPs significantly increased percent commissions on the balance and imposable (taxable) income, as a means of reverting the 1981-82 negative operating result which stemmed from heavy start up costs".

Amortization of start-up costs amounted to over 13% of total operating costs in 1983 and 1984. *Indeed, during 1983 and 1984, most affiliates paid more than an entire month's salary in pension fund commissions and insurance costs.*

From the beginning, pension funds have employed marketing tactics normal to selling long dated endowment type insurance policies, relying on direct personal marketing using salespersons, rather than indirect marketing typical of banks or mutual funds. Direct marketing expenses and sales staff costs amounted to about a quarter of the total administrative costs per contributor in 1983, and 21.9% in 1984. In March 1982, the affiliates were restricted to a minimum period of three months with an AFP, which was increased to four months in November 1982. In addition, the affiliates were required to confirm the transfer to a special AFP agency. However, the sales and marketing costs fell only marginally to around 20% of the total by 1987. When the latter requirement was dropped in March 1988, these costs started rising dramatically reaching 37% of the total in 1994. In 1995, these costs fell to 32% of the total, but still rose 9% in real terms. As a result of this increasing marketing costs, the

> "downward trend in previsional costs became almost imperceptible starting in 1990, when commercial costs began escalating. This occurred despite the increase in contributors' real income (44.8% between 1990 and 1995). As a matter of fact, from 1990 to 1995 this cost stagnated at 3.1% of imposable income, whereas in monetary terms they increased by 40.4%."[5]

Simultaneously, the number of transfers increased from 306,819 in 1988 to over 1.3 million in 1995. As the participation in the system is mandatory for all but the self-employed, most of the marketing expense is targeted towards stealing clients from other AFPs. For example, during December 1995, 11051 new workers, both salaried and self-

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4 *The Chilean Pension System*, June 1996.

5 Ibid.

employed, joined the system, whereas 113,945 affiliates transferred from one AFP to another during the same month. The transfers amounted to 25% of all affiliates in 1995 while the attempts to transfer amounted to about 37% of the total. The sales force of the AFPs amounted to 15,432 agents in 1995, implying that each agent was responsible for bringing only 8.1 accounts per month, and less than one of which is a new entrant to labor market. The switches are engineered through high pressure, or even unethical, direct marketing and bribes. Offering rebates of sales commissions, or gifts of pens, calculators, telephones, etc. are common practices. Of the 22,000 agents registered with the Superintendency, as many as 5,000 have been delicenced as sales agents for forging signatures of affiliates on transfer forms or lesser offenses such as providing misleading information. Delisted agents can be, and often are, employed in other parts of the AFPs.

Vigorous competition between AFPs for clients based on net return performance, suitability of investment product, and service would certainly be desirable. However, service standards are largely regulated. And investments and thus returns are largely indistinguishable. Thus AFPs compete primarily by outspending each other on direct marketing designed to switch clients from other AFPs. *The Chilean Pension System* (p. 82) observes that the three causes of the intensity of competition are the large number of AFPs, the difficulty of the AFPs to differentiate the product-service they provide, and the limited potential of expanding through new affiliates versus transfers. It also observes (p. 83) that the affiliates have "no possibility of exerting group pressure on the AFP in order to achieve favorable conditions, such as, for example, a reduction in costs".

A different -- more inclusive -- system design, permitting different types of existing financial intermediaries (such as banks or mutual funds who rely on indirect marketing) and greater diversity of investment products would have material influence on the set-up and marketing expenses, which have accounted from a 25-37% of the total. In particular, the AFP account structure seems over-engineered and expensive for most low income or new affiliates. As of December 1995, over 35% of the 5.4 million affiliates had less than $500 in their accounts, and over half had under $1228 (500,000 Chilean pesos) in their accounts. Many of these accounts seem too small to be inexpensively managed by pension funds, and would form natural clients for banks. Table 5 provides some idea of the returns from alternative investments had these been permitted. For example, the average return on CDs was about 8.2% p.a. over 1982-86, compared to 0.3% p.a. in the average AFP account. Even if the banks charge fees or require minimum balances, it is unlikely that these will prevent affiliates saving 13-14% a month regularly without a bank account or with practically zero return over five years. Banks have some natural advantages -- existing banking relationships with employers/affiliates, participation in the payment system, a tradition of low or no fee accounts, and indirect marketing -- in handling high frequency, low balance accounts. (Actually, monthly deposits/payments would hardly constitute high frequency for banks.) Existing mutual fund and bank products would also spare the affiliates many of the set-up costs. The Table also shows the very high average real returns and volatility from investing in Chilean stocks, that may have been appropriate investment strategies for certain affiliates.

Table 5: Comparison of Performance of Financial Instruments in Chile

	90-365 CD Real Rate (a)	Fixed Income Real IRR (b)	IFCG Total US$ Index (c)	Pension Fund Returns (d)	Annual IRR to date (e)
1982	12.4%		-54.6%	28.8%	-3.2%
1983	7.9%	9.6%	-31.5%	21.3%	-1.3%
1984	8.4%	8.0%	-23.7%	3.5%	-5.9%
1985	8.2%	8.7%	49.3%	13.4%	-2.3%
1986	4.1%	5.1%	154.8%	12.3%	0.3%
1987	4.3%	6.0%	30.2%	5.4%	0.5%
1988	4.6%	5.8%	37.1%	6.4%	1.4%
1989	6.8%	7.7%	51.2%	6.9%	2.1%
1990	9.4%	7.3%	40.4%	15.5%	4.2%
1991	5.4%	5.8%	98.1%	29.7%	7.9%
1992	5.3%	7.6%	16.2%	3.1%	6.9%
1993	6.4%	6.6%	34.6%	16.2%	8.0%
1994	6.4%	6.1%	45.0%	18.2%	9.1%
1995	5.9%	6.9%	0.6%	-2.5%	7.4%
Avg after 5 years (f)	8.2%	7.9%	18.1%	15.9%	0.3%
Avg after 10 years (f)	7.1%	7.1%	35.1%	14.3%	7.9%
Avg after 14 years(f)	6.8%	7.0%	30.4%	12.7%	7.4%

(a) Interest rates for 90-365 day deposits; deflated by the UF (Unidad de Fomento—the economic index that reflects inflation variations according to the CPI (IPC)).
(b) Real annual average internal rate of return for fixed income instruments traded on the Chilean stock exchange.
(c) IFC Global Index; From 1994 forward, Index constitutes 60% to 75% of the total capitalization of the local stock exchange. This index takes into account the effect of dividend reinvestment.
(d) Real pension fund index without adjustments for fees and commissions.
(e) Annual Internal Rate of Return reflects the IRR up to the corresponding year.
(f) Simple average is taken for the CD rate (a); Fixed Income Real IRR (b); IFCG Total (c); and Pension Fund Returns (d). IRR returns reflect average returns for an affiliate over the period 1982-1995.

Sources: *Bolsa Comercio de Santiago*; IFC Emerging Markets Database; "Informe Económico y Financiero," Banco Central de Chile.

If the regulators permitted banks and mutual funds to manage mandated savings accounts, most low income and new affiliates would probably start with a more familiar bank accounts, and slowly graduate to mutual/pension funds as their balance grew. In December 1995, about 1.14 million affiliates, over a quarter of the total, had balances exceeding $5,000, and about 463,000 of these had balances of more than $12,000. Thus, mutual and pension funds would also have a natural clientele -- more affluent, more sophisticated, and demanding better investment products. In such a scenario, pension funds could form, but would face greater constraints in passing on large marketing or set-up costs to the clients, if mutual funds are competing on the basis of low cost and high return pass-through.

A more thorough comparison based on the history of typical transaction charges of the banks, mutual funds, and pension funds would certainly help regulators assess such choices better. But it is worth emphasizing that the mandated retirement savings (which in Chile were $27.7 billion, over 45% of GDP in July 1996) of the order 13-15% of the payroll are not marginal flows. Permitting all financial intermediaries to share this lucrative pie will improve incentives to offer appropriate products, economies of scale, the bargaining power of the affiliates, and cost consciousness among all intermediaries.

The Case of Peru

Recent History. Peru was the second country in Latin America to undertake major social security reforms. Evaluation of social security reform options began in earnest in 1990 and in 1992, an option to the national PAYG system was created. Private pension funds commenced operations in July 1993. Unlike Chile, the participation in the private system is voluntary. Eight *Administradores de Fondos de Pensiones* (AFPs) were formed initially; three have since closed with large losses and were merged or taken over by the survivors. Affiliation to the private system was slow until 1995 due to a weak information campaign, some delays in issuance of recognition bonds, lower contribution rates for the public system than in the private system, and the failure to close the public system to new entrants to labor pool. The contribution rates between the public and private systems were equalized in July 1995 and the rates for public system are expected to become higher to discourage continued participation in the public system in 1997. In 1996, affiliation has increased significantly, to over 50,000 affiliates per month, with increasing awareness of the problems of the public pension system and public measures to encourage a transfer. As of September 1996, some 1.4 million Peruvian workers were affiliated with private AFPs, with a roughly similar number remaining in the public system. The total assets managed approached $900 million in September 1996.

Regulation. The Peruvian regulation is very similar to that of Chile. Only AFPs created under the new laws are entitled to manage mandated retirement savings. Each AFP manages a single portfolio and each affiliate is entitled to one account only. As in Chile, each AFP must ensure returns within a band of 50-150% of industry average returns, with the excess over 150% being reserved and shortfalls below 50% covered from the excess reserves or the AFP. A new Superintendent of Pension Funds was formed. Investment guidelines are fairly strict, with equity investments being restricted to effectively 10% of the fund assets initially and 20% since December 1995[6]. The commissions are not restricted. Typically, the AFPs charge fixed monthly commissions

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[6] This limit applies to common shares with voting rights. In addition, funds are allowed to invest a similar amount in the so called "labor" shares issued by many Peruvian companies. These are non-voting shares, accounting for about 10% of the total stock market capitalization, and are rather illiquid. By and large, the pension funds are unable to invest significant amounts in these shares. There was a proposal by the securities regulator to eliminate these labor shares either by payout or conversion into straight equity or other instruments, and a separate proposal by the Superintendency of the AFPs to combine these limits and permit investment of 35% of the funds' assets in equity in September 1996.

plus a variable commission based on salary. The latter has typically been of the order of 2-2.3% of salary. Until November 1995, the SAFP did not permit transfers between AFPs. It now requires a minimum contribution period of six months and a fee of soles 40 to transfer to another AFP.

Investment Portfolio. As in Chile, return guarantees relative to industry average have caused AFPs to invest in virtually identical portfolios, not only in terms of broad allocation between stocks, bonds, etc. but also in individual security holdings. The Superintendent of AFPs (SAFP) generates exhaustive data on individual funds' portfolios and the AFPs regularly monitor and mimic each other's portfolio. This is reflected in increasing convergence of values of AFP stocks. The variation [(Max-Min)/Average] in AFP share values was 8.1% in 1993, 6.4% in 1994, 4.3% in 1995, and 5.3% in September 1996. The portfolio is apparently unsuitable to the needs of the young affiliates. More than half the affiliates are less than 30 years old, over two-thirds are less than 35, and less than 10% are over 45. Yet over half the AFP investments are in bank CDs, and bonds of financial institutions. Some AFP managers confess that the return bands not only reduce the incentives to compete on the basis of product differentiation, specialization, or efficiencies of scale, but they find some comfort in this arrangement as it avoids likelihood of under-performance[7]. Following a review of the social security system under a World Bank project, in November 1996 Peruvian authorities planned to issue new regulations to drop the minimum return guarantee.

Performance of AFP System. AFPs and SAFP statistics used to publicize high realized rates of return, ranging from 6-8% p.a. in real terms. The returns were, however, computed before commissions. Thus most affiliates may not have been fully aware of the effective return on their savings. As part of the World Bank project referred to above, there are plans now to require AFPs to report return statistics net of expenses. Table 6 summarizes the performance of Peruvian AFPs. It shows the aggregate contributions in the individual accounts, total commissions, year-end account balances, and annual internal rates of return after taking into account commissions, for the period August 1993 to September 1996. It shows that Peruvian affiliates realized negative returns, net of expenses, in the first two years, and returns of 4.46% p.a. by the third year. Compared to inflation of 15-20% p.a. during this period, returns were significantly negative in real terms.

Table 6: Pension Fund Returns in Peru (in thousands of new soles)

Year[1]	Annual Contribution	Annual Commissions Collected	Annual Outflows of Affiliate	Cumulative Contribution	Year-End Assets Managed	Annual Internal Rate of Return[2]
1994	382939	47924	430863	430863	430236	-0.32%
1995	610398	122872	733270	1164133	1154906	-0.92%

[7] While investment managers interviewed would not discuss their compensation in detail, it appears to be partly based on relative returns..

1996	751649	204808	956457	2120590	2241167	4.46%

Notes: [1] Months covered for year 1994 are August 1993- September 1994; October-September for years 1995 and 1996.
[2] IRR is calculated using the monthly flow through the end of the corresponding period.
Sources: Superintendency of Pension Fund Administrators, Peru.

Table 7 compares the returns on investment in CDs and Peruvian stock market versus the gross and net returns from pension funds, and is indicative of the opportunity costs of not being able to invest more flexibly. For example, an affiliate able to invest in bank CDs at the average rates reported below, without paying the typical AFP fees, would have obtained average returns of around 15-17% p.a., compared to 4.5% p.a. earned in pension funds.

Table 7: Performance of Financial Instruments in Peru

Year (a)	180-365 CD Rate (b)	IFCG Total Local Currency Index (c)	Gross Pension Fund IRR (d)	Net Pension Fund IRR (e)
1994	16.9%	80.4%	27.8%	-0.3%
1995	17.2%	55.7%	18.0%	-0.9%
1996	15.0%	17.3%	20.3%	4.5%

(a) Months covered for 1994 are Aug 93- Sep 94; Oct-Sep for years 1995 and 1996.
(b) Interest rates for 180-360 day deposits for September of indicated year. 1996 figure is for August.
(c) IFC Global Index in local currency with dividends reinvested. Annual change in index December to December figure for the preceding year.
(d) Annual internal rate of return through the corresponding date without considering fees and commissions.
(e) Annual internal rate of return through the corresponding date considering fees and commissions.

Sources: IFC Emerging Markets Database; Peruvian Superintendencia de Administradoras Privadas de Fondos de Pensiones.

Marketing Expenses. Analysis of the financial results of the system and individual AFPs reveal the same pronounced pattern of marketing expenses. The direct marketing expenses amounted to over half the total expenses and over 60% of total commissions in 1995 and 1996. AFPs employ some 4,600 salespersons ("promoters"), who generate an average of 8-10 customers each month through door to door canvassing. There is little effort at informing or marketing through mass media and or collaborative advertising. The marketing strategy focuses on inducing transfers from other AFPs of affiliates who have already joined the privatized system, rather than from the national PAYG system. AFPs pay promoters a commission starting from 3.5% up to 16% of monthly salary. At the higher end, it would take an AFP over eight months of affiliation to recover just the direct sales commission. If the affiliate transfers to another AFP after the minimum six months, the former AFP would not even recover the promoter's commission.

Despite the large costs paid by the affiliates, and the significant increase in volume of assets managed, to nearly $900 million, each AFP is losing money. As of July 1996, they had accumulated losses of over $82 million, or about two-thirds of their originally paid-in capital. In addition, they had deferred expenses of about $48 million, or 57% of their reported assets. If these were written off, the AFPs would be operating with nearly zero or negative capital. AFPs apparently monitor the capital and financial situation of each other, hoping to take over others and prevent being taken over. Their accumulated losses indicate future pressures to raise commissions.

In Peru, the authorities have implemented significant improvements in the regulatory regime. In November 1995, they eliminated the return bands, substantially relaxed investment guidelines, and now require reporting of net returns. Whether these changes motivate the AFPs to invest in varied portfolios and reduce their reliance on direct marketing remains to be seen.

The experience of Chile and Peru are not unique. Similar tendencies towards high set up expenses, focus on door to door marketing and other high pressure sales tactics, and effectively high commissions, are discernible in other countries, such as Argentina and Uruguay. It would be reasonable to expect that the affiliates in the AFP model may not see positive returns for several years, even if they save as much as 12-15% of their salaries, and the underlying assets perform well. Permitting other financial intermediaries to manage mandated savings will force the AFPs to better control their largest costs: marketing expenses and set-up expenses. In particular, it seems possible to significantly improve the outcome for the affiliates by permitting them to invest in relatively simple instruments such as bank CDs. In the next sections, we examine the regulatory concerns that contribute to segmentation of mandated savings and creation of these special purpose AFPs.

3. Investment Regulation

Why Regulate AFP Investments? Pension fund managers should be clearly subject to regulation relating to "fit and proper" tests for the managing institution and its principal officials, financial solvency, avoidance of conflicts of interest (front running, insider trading, transactions with related banks, brokers, etc.), custodial safeguards for managed assets, information disclosure, fiduciary responsibility, account keeping, net asset value calculations, and so forth. These requirements are fundamental and should be imposed on all financial intermediaries managing voluntary or mandated savings from the general public.

But typically, social security reforms have involved much more *direct* investment regulation beyond such *prudential* requirements. As in Chile, such regulation involves exclusion of certain classes of financial assets altogether (equity investments, at the beginning of the reform) and/or rather stringent limits and complex selection criteria on broad classes of assets, individual securities, issuers, and so forth. These restrictions are subsequently relaxed somewhat. Such an approach has become somewhat of a norm. A common justification is based on problems of illiquidity, trading practices, disclosure and corporate governance standards, accounting practices and other problems of developing capital markets. The argument is that in such situations, it is particularly important that the retirement savings be invested in "safe" or "prudent" investments. The role of regulators in defining "safe" is justified on the ground that having mandated savings, the state owes a special responsibility to ensure avoidance of "inappropriate" investments by unsophisticated investors. In addition, the minimum pension guarantee makes the state arguably an interested party in the payoff of the investments.[8]

Risks to be Controlled. While such a motivation is well-meaning, it is desirable to examine the role and efficacy of resulting direct investment regulation critically. In doing so, we assume that the ultimate purpose of reform of PAYG state-run systems is to create financial security for retirees, by helping them realize the highest rates of returns consistent with prudent assumption of risks, aided by professional intermediaries. Further, it is necessary to distinguish between the two rather different risks that the regulators may try to control by imposing investment restrictions. First is the inherent risk of real investment, macroeconomic risks, illiquidity, poor disclosure or corporate governance standards, etc. which results in uncertain returns and can be summarized as *return volatility*. The second risk relates to the *principal-agent problem*, i.e. the concern that the pension fund manager may invest so as to optimize some private objective function, at the expense of the affiliate.

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[8] We exclude from present consideration some other restrictions which obviously seek other objectives than maximize affiliates' welfare, such as requirements to invest in Treasury securities in order to finance public deficit, to invest in specific industries of "national interest", to invest in privatizing companies, or to refrain from investing in foreign securities.

Usefulness of Investment Regulation for Return Distribution Risks. Let us consider the first risk, within some underlying financial economics model of portfolio selection. Under a standard inter-temporal savings-investment decisions model, a rational economic agent would allocate income between savings and consumption inter-temporally. Standard portfolio theory helps define the feasible investment universe and the efficient frontier of investment possibilities. The rational individual would select the right amount of savings and invest them in a portfolio that is both on the efficient frontier, and maximizes the individual's welfare, given the individual's risk-reward preferences. Dynamic, repeated solutions of the problem allows for changes in risk preferences, family or health situation, income level, realized returns, economic conditions, and investment possibilities.

Consider a typical Markowitz framework, where an investor faces choices in risk-return space between different portfolios. As is well-known, in this framework, if returns on two securities are perfectly positively correlated, their portfolios imply a linear tradeoff between risks and returns. Combining two less than perfectly positively correlated assets, one can improve returns with a less than proportionate increase in risk. By systematically considering all available securities, and combining less than perfectly positively correlated assets, an investor would ultimately arrive at a concave (positively sloped) efficient frontier combining highest returns for each level of risk. Investors should then choose portfolios at the point of tangency between their indifference curve (between risks and returns) and the efficient frontier, as shown in Figure 1.

Now, if in such Markowitz framework, individuals were by and large choosing tangency portfolios, i.e. maximizing their welfare, it would be such a highly desirable outcome that there would be extremely little justification for state intervention[9]. If individuals are missing tangency portfolios, either because of inadequate sophistication of affiliates or fund managers, then regulation may have a role *provided* that the regulation increases the probability that savers remain on or close to their tangency portfolio. Thus regulation should be designed and judged by the degree to which it achieves this purpose.

This implies that the regulators must estimate the efficient frontier, and issue regulation such that the probability of investing in a portfolio on the frontier is increased, while that of choosing other portfolios is decreased. It is extremely unlikely that regulators can do this task systematically better than unconstrained fund managers. Moreover, regulation purporting to improve portfolio optimization, involves very tight control over private investment managers and thus a strong implicit responsibility for the state for the eventual result. This is clearly not the intention of regulators in most countries implementing private pension reforms.

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[9] One might object to this reasoning on the grounds that some individuals may choose riskier portfolios than the government would because of minimum guarantees. While the individual would benefit/lose from only his own payoff, the government can benefit from high payoff to some affiliates while paying minimum pension to others. The problem (of individuals inflicting losses on the government) would be significant only if the state creates a moral hazard by offering a high guaranteed payoff. That problem can be resolved by lowering the guarantee.

Insert Figures 1,2,3 & 4

A more modest goal of direct investment restrictions could be to simply limit the fund portfolio risk to some maximum. In the terminology of the two-parameter investment world, this would imply placing a vertical bar on the investment opportunity space [Figure 2], and ruling out portfolios to the right of it. However, there is simply no easy way to regulate the aggregate risk of the *portfolio*.

What the regulators can and do attempt in practice is to restrict investments in certain securities altogether or as a proportion of total investments. This is a very inefficient way to restrict risks. Figure 3 depicts the effects of disallowing a certain class of security (e.g. equities) altogether. With such restrictions, the portfolios must be constructed with interest bearing securities only which are more highly correlated. By eliminating the possibility of combining the most imperfectly correlated securities, most meaningful opportunities for reducing risks and improving returns are also eliminated. Additional restrictions concentrating investments in the highest credit rating classes would have the effect of permitting investments in even more highly correlated securities, offering even more linear risk-return tradeoff. *Essentially, such restrictions bend the feasible investment frontier inward and away from the efficient region, which is exactly the opposite of desired effect.* Similar unintended and unfortunate results are achieved by selectively restricting certain securities, such as stocks with high concentration of ownership (in Chile), or low turnover (Chile and Mexico)[10].

The effects of maximum ceilings on certain types of investments (such as no more than 30% of the portfolio in equities) can be characterized graphically as vertical boundary limiting investment possibilities [Figure 4]. Again, it is easy to see that such restrictions disproportionately eliminate the efficient frontier. As these restrictions get tighter, they tend to eliminate more and more of the efficient frontier, quite possibly eliminating the possibility of forming any efficient portfolio at all.

Why then do the regulators impose such investment guidelines? It is possible that direct investment restrictions are unconsciously extended from the prudential regulation from banking or insurance sectors, which (correctly) emphasizes adequate solvency and liquidity to meet a fixed level of liabilities, to the arena of defined contribution investment management whose objective is to optimize risk-return tradeoff. As a result, pension fund regulation may well be guided by a rather inappropriate notion of risk. Risk in financial investment is typically defined as uncertainty that the actual return would equal expected return (μ), and measured by the standard deviation (σ) over some horizon, usually a few months. This widely used notion may well be the basis of regulatory

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[10] In Mexico, although the pension reform laws permit administrators to offer different types of funds, regulators are planning to restrict this choice initially to one fund per administrator "fundamentally" invested in inflation-indexed debt instruments. Except for recently introduced UDI (inflation)-linked bonds, and *ajustabonos*, there are no inflation-linked securities. Mexican authorities also contemplate a plan wherein equity investments, when permitted, would be limited to only 53 most liquid of the 186 companies listed on the stock exchange.

conservatism where stocks are regarded as riskier than bonds, and illiquid securities would be treated as riskier than liquid securities.

But in mandated pension plans, investments must be made regularly and over long periods of time. Consider a situation where the more volatile assets (say, equities) yield higher long term average returns than the less volatile ones (bonds), but where the fund managers have little ability to predict how each will perform in short periods[11]. In this case, the risk of choosing "equities" over "bonds" is more appropriately defined as $\Pr\{R_{ST} - R_{BT}\} > 0$. Assuming the long term return distribution parameters are reasonably stable and multiperiod distributions are not perfectly correlated, this probability rises as holding period (T) grows. This would imply that younger workers may deliberately choose a high risk, high reward strategy, starting with a high allocation of investment in favor of equity, and gradually reducing the percentage allocation to equity as the time to retirement (actually, consumption of accumulated savings) approaches.

Investment Regulation and Principal Agent Problem. Let us consider the principal agent problem which may have both economic and political significance. There are many opportunities for the fund managers to abuse affiliates: through front running (personal trades placed before fund trades), price manipulation, cheating in NAV calculations, not applying payments in and out in strict serial order, trading with related brokers or banks, or in securities of related businesses. These are well-known and important problems for which there are well-known regulatory defenses: fit and proper tests, NAV calculation regime, restrictions on and penalties for front running and insider trading, reporting requirements, etc.. However, direct investment regulation is at best an ineffective, and at worst a counterproductive, remedy for these problems. But *if* the regulators have strong priors that such problems disproportionately concentrate in certain types of securities, e.g. with high ownership concentration or illiquidity, then direct investment restrictions may be justified[12]. In this case, however, similar restrictions would be equally justified for other types of fund managers, such as mutual funds. Indeed, there is merit in examining virtually all aspects of pension fund regulation -- applying to eligibility standards, capital requirements, corporate governance, disclosure, standard of fiduciary care, penalties, and investments -- against relevant regulation for mutual funds and avoiding multiple standards unless a very clear rationale can be articulated.

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[11] These are excellent assumptions for developed markets. Given the shorter series of returns on different classes of assets in developing countries and frequency of policy changes, the positive correlation between return volatility and means may be more difficult to deduce formally. However, it would be even more difficult to argue that the correlation is negative. Market timing may well be a potentially more successful strategy in developing countries where greater policy changes may be expected. To profit from this, however, the regulators would have to tolerate substantial changes in portfolio mix over short periods, which may be again contrary to conventional wisdom.

[12] There is a chicken and egg problem here, i.e. limiting pension fund participation may also contribute to or perpetuate higher concentration and illiquidity.

To summarize, direct *investment* restrictions -- routinely and somewhat excessively used to control portfolio return variability -- are difficult to justify based on standard financial theory or the specific objectives of social security reforms. These restrictions clearly fail to optimize risk-return tradeoffs since they direct investments away from, rather than towards, the efficient investment frontier and increase concentration and diversifiable risks. They do not necessarily cap risks within intended limits, cause a disproportionate loss of expected returns, and it is not clear that the resulting portfolios have necessarily lower risks. Considering the legitimate changes in an individual's risk preferences through time due to changes in age, wealth, health and job security and the changes in investment universe, direct investment restrictions may hurt most affiliates. While some regulation may always be justified ex-post[13], in general, they seem to induce a bias towards under-performance. Agency problems in developing capital markets may call for strong *prudential* regulation, and may justify some direct investment restrictions on illiquid or tightly held securities. But if so, similar regulation should be imposed on mutual funds and other investment managers.

The notion that pension fund investments are collectively special and require completely special regulation strongly influences the AFP-based pension reform design, and contributes to the separation of mandated savings industry and its regulator from other financial intermediaries managing voluntary savings and their regulators. If mandated savings are appropriately considered part of the overall savings of the investor, to be invested according to the different and time-varying circumstances and risk-return preferences of the affiliates, then the affiliates should be allowed greater freedom in selection of portfolios. By extension, it should not be necessary for the fund managers to offer a single investment portfolio, nor for the affiliates to invest their entire mandated savings in one portfolio with one financial intermediary. Finally, if the mandated pension savings should be invested in differentiated products, and different pension funds can offer multiple, specialized products such as money market funds, bond funds or stock funds, there would be little reason to exclude mutual funds, banks, and insurance companies from offering such products directly to the affiliates.

4. Competition in Managing Mandated Savings

Effect of Return Guarantees. As discussed earlier, AFPs in Chile, Argentina, Uruguay, and Colombia[14] oblige fund managers to guarantee a return within a certain range. Given the normal variation in emerging market asset returns, even fund managers pursuing a logical long term investment strategy and a non-trivial investment in equity or fixed rate long term bonds would be concerned about the risk of periodically under-

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13 For instance, the Chilean restrictions on equity investments until 1985 would seem justifiable ex-post given the negative returns of stocks during 1982-85. [Although fund managers too may have voluntarily limited their equity investments during this period.] On the other hand, restricting equity investments to 30% of the portfolio between 1986-95 -- when stock returns were very high -- inflicted big opportunity losses on funds that might have wanted to exceed that limit.

14 Mexico is a notable exception. Peru has removed these bands.

performing the minimum benchmark. Such regulatory benchmarks are frequently incorporated in the remuneration of pension fund managers. The return shortfall liability and the lost bonus would be non-trivial compared to the administrator's return on equity or the fund manager's remuneration. As these risks can be easily avoided by investing in the benchmark (industry) portfolio, the practical outcome of these return bands is to encourage all pension funds to invest in virtually identical portfolios[15].

The Chilean Pension System describes the results in a forthright fashion.

"Administrators are incited to invest on portfolios similar to the average ('herd effect'), which means the method does not offer different options for affiliates showing diverse risk and yield preferences. This is particularly pernicious for old-aged workers and for pensioners with programmed withdrawals. Another implication of the 'herd effect' is that it limits possibilities of adjusting the portfolio when market conditions change.... The lack of diversity in the investment policies increases the importance of the sale representative in the affiliate's decision.....There might be a de-incentive for studies on investments from the smaller AFPs' part, since they would just limit themselves to doing whatever their competitors were doing."

Exclusion of Other Intermediaries and Alternative Financial Products. The typical AFP-based reform confers a collective monopoly of managing mandated savings to pension funds. The experience of Chile and Peru suggested several disadvantages to the affiliates from such a design: large set-up costs that could be avoided or reduced, large marketing expenses that do not bring better or different products or improve investor education, and forcing uninformed decisions initially by requiring the affiliates to choose between managers with no track record.

While these costs to the affiliates are the driving factors, regulators should also worry about creating a competitive and even playing field for different financial intermediaries and economies of scale. The essential functions of the pension funds (collection, investments, and withdrawals) are easily performed by mutual funds. Indeed, a large number of mutual funds were already operational when pension reforms were initiated in many countries. In Chile and Mexico, the mutual funds were already managing a significant amount of funds. Virtually all reforming countries permit the pension funds to invest in mutual funds, bank CDs, and Treasury securities, but don't allow diversified or money market mutual funds or banks to manage pension savings directly. While some direct competition may or may not be feasible at the early stage, the funds may be expected to resist, with increasing success as their assets and lobbying power grows, such competition in the future. Pension fund regulators themselves may not be neutral to removing some market segmentation and unifying relevant regulation. In many countries, the unequal playing field between different financial intermediaries is taken a step further. While other financial intermediaries are prevented from managing mandated savings, pension funds are permitted to compete for voluntary savings. Such

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[15] Indeed, the task of copying the industry portfolio is made rather easy by the periodic publication of the detailed portfolio composition of all funds by the regulators. In practice, the fund managers do not even need an identical portfolio; any portfolio highly correlated to the benchmark would suffice. Thus seemingly different portfolios from different pension funds may nonetheless offer no meaningful choices to the affiliates.

lack of competition can only encourage more expensive business and marketing strategies, higher costs and commissions passed on to the affiliates,

Restrictions on Workers' Choice of Fund. In Chile, Peru, and Argentina, pension regulations allow each worker to invest in only one pension fund. In Mexico, the law allows each worker to invest in multiple funds offered by the same administrator, but the choice is initially limited to a single fund investing in inflation-linked debt securities. Typically, the workers cannot switch between funds more than once or twice a year. These restrictions force each pension fund to attempt to invest in all financial markets. In some economies, it may be more cost-efficient for administrators to specialize in debt and money market instruments (e.g. for funds led by commercial banks), bonds, or equity investments. Second, these restrictions make it impossible for the affiliates to gradually change the risks of their portfolio as they age and become more risk averse. Finally, these restrictions subtly discourage new entry. Affiliates cannot "try out" a new fund with a small amount of their nest egg. They must either invest nothing or all.

5. The Effect of Commission Structure on Costs and Incentives

Mutual funds and other money managers typically collect commissions as a percentage of assets managed. In contrast, the pension funds charge the bulk of the commissions as a percentage of salaries.[16] Though seemingly innocuous, this difference generates important unintended and undesirable consequences.

To see this, consider a private pension system with these assumptions. Wages grow at 6% p.a., pension fund portfolios grow at 10% p.a., affiliates pay 14% of salary into a funded account, of which 1 percentage point is paid towards insurance, another 3 percentage points go as commissions to pension funds, and 10% of salary is credited in the individual pension fund account. We compare the commissions in this pension fund account, with the alternative of charging commissions of 2% p.a. on assets managed. We compute and cumulate commissions under these two methods through time, compounding at the rate of return on investments. Table 8 summarizes the results of this comparison.

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[16] Variable commissions on assets under management are permitted by law in Argentina, Bolivia, Mexico, Peru, and Uruguay but are charged by AFPs. Chile permitted such commissions but discontinued them since 1987.

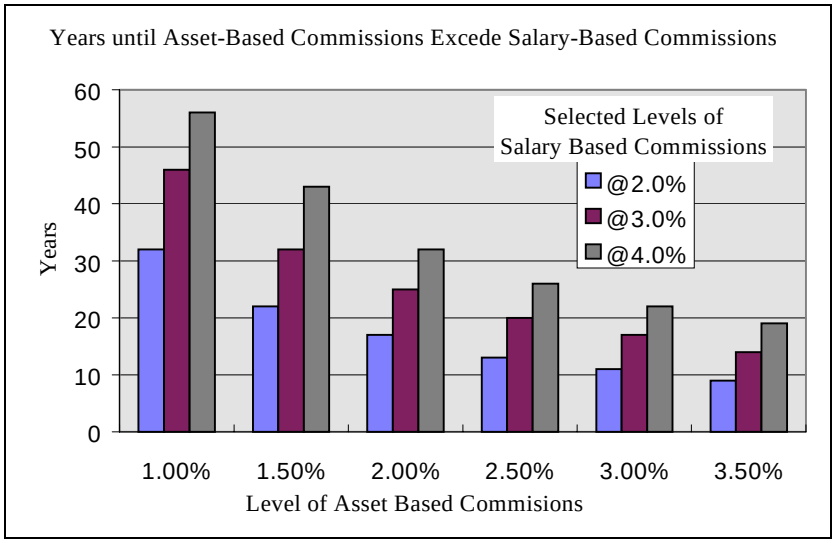
Table 8: Commission Structure

Investment Year	Cumulative Commission (% of salary)	Cumulative Returns	Cumulative Commission/ Returns	Cumulative Commissions (% of assets managed)	Actual Commission/ Normal Commission
	(a)	(b)	(a/b)	(c)	(a/c)
5	22.5	18.5	1.21	4.6	4.88
10	66.2	89.0	0.74	25.6	2.58
15	146.9	256.0	0.57	85.1	1.73
20	290.4	600.2	0.48	226.9	1.28
25	539.8	1250.6	0.43	536.2	1.01
30	965.7	2428.5	0.40	1173.0	0.82
35	1684.3	4500.1	0.37	2432.0	0.69
40	2885.3	8070.1	0.36	4859.6	0.59

Note: Based on an assumption that wages grow at 6% p.a., pension fund portfolios grow at 10% p.a., affiliates pay 14% of salary into a funded account, of which 1 percentage point is paid towards insurance, another 3 percentage points go as commissions to pension funds, and 10% of salary is credited in the individual pension fund account.

Table 8 reveals many tendencies inherent in typical commission structure of private pension systems. First, it shows that the pension funds take the lion's share of the returns in initial years by way of commissions. Second, as the ratio of commissions to returns exceeds one for several years, the affiliates make negative returns for several years. This is consistent with the low or negative net internal rates of return realized by the Chilean and Peruvian affiliates for several years.

Chart 1



Second, the salary based commissions exceed asset based commissions for 25 years. The extent of "prepayment" is naturally related to the level of asset based charges we assume and would be lower if asset-based fees were higher. Chart 1 compares commissions of 2-4% of salaries against asset-based fees ranging from 1-3.5% p.a.. It shows that within these ranges, affiliates would have "prepaid" for future services from

nine to 55 years. Under many different circumstances, it appears that the salary based commissions result in prepayment by the affiliates to an extraordinary degree.

This large prepayment of expenses by the affiliates introduces several distortions and undesirable tendencies. First, the countries that choose to encourage rather than force conversion to a privately managed funded pension system are handicapped in "selling" the system. Second, the prepayment permits and quite possibly encourages many AFPs to undertake heavy expenses (such as marketing or set-up) that they would otherwise need to finance themselves and therefore avoid. It may also encourage entry of more AFPs than the system can reasonably support, given the fixed costs and economies of scale, implying some of the AFPs may fail relatively soon. The experiences of Chile and Peru are consistent with these inferences.

Third, even if the initial assumptions hold for the entire working life of the affiliates, older workers lose systematically vis-à-vis younger workers and will not be compensated for their initial prepayment. For instance, under Table 8 assumptions, if workers retire at age 60, anyone joining the system at age 35 or later would forfeit a part of their prepayment in favor of the AFPs or younger workers. Obviously, no socially desirable purpose is intended or achieved through such cross-subsidy.

Fourth, an AFP in the initial stages of the affiliation would receive significantly more "prepaid" income than another joining the system at a more mature stage. To the extent that some of the AFPs fail and exit the system during initial period, as 10 out of 25 have in Chile or 3 out of 8 in Peru, without fully honoring their "prepaid" service commitments, there is a transfer of resources from surviving AFPs or contributors to failing AFPs. Given the weak state of competition in the industry, it is likely that this cost would fall largely upon the affiliates.

Finally, salary-based commissions subtly discourage competition from more cost-efficient new AFPs in the future. For instance, suppose a new asset manager ("Fidelity") wants to enter the business in the 25th year following the reform, when the new entrants to the labor force are relatively few. To break-even with a pool of seasoned affiliates with higher accumulated balances and lower fee:assets ratio compared to new entrants, the new manager must charge fees based on the large balance, thus raising hurdles for potential entrants to the system.

Table 8 shows that if the initial assumptions hold for 40 years, the salary-based commissions may be less than the asset-based charges. But this is unlikely to happen due to the large number of complicated implicit contracts that need be sustained between the AFPs and between AFPs and affiliates. Few AFPs explicitly recognize the front-end nature of the commissions and none is known to actually defer income recognition to future years and reserve against current income. Neither tax law nor standard accounting practices may permit such deferral. (Indeed, the typical fund in Chile, Argentina and Peru has incurred sizable losses in the initial years, while fully recognizing all the commissions received.) Thus, "prepaid" portion of the commissions would be taxed, distributed and will likely be reflected in equity prices. Future AFP shareholders would expect a return

on equity commensurate to the current share prices and raise charges. The system thus encourages a tendency to raise charges significantly in the future.

The above problems are amenable to very simple solution, requiring AFPs to charge commissions on the basis of assets managed, in addition to very small transaction fees (say, a few cents) for typical transactions. While AFPs should be free to charge asset commissions without regulatory caps, and with or without loyalty discounts, they should also be required to publish gross and net returns after expenses on a quarterly basis. These changes are essentially purely technical and do not restrict profitability of the AFPs in any way. Yet, they can cause AFPs with significant reputation capital to shy away from taking the lion's share of return on affiliates' capital and instead opt for low cost marketing and business strategies more oriented towards maximizing net returns than market share. It would also permit greater transparency in assessing the value added by the AFPs.

6. Effects of Adverse Incentives to Competition

To summarize, the AFP model suffers from myriad disincentives to competition that could lower net returns and suitability of investment portfolio for the affiliate. These range from direct restrictions on competition from domestic banks, mutual funds, or insurance companies; disincentives to product-based competition among pension funds; excessive restrictions on investments; restrictions on the affiliates' ability to allocate savings across multiple funds; a front-loaded commission structure that create extraordinary possibilities for excessive marketing or set-up costs; difficulties of comparing returns of pension funds versus other intermediaries and reduced incentives for specialization, innovation, and efficiency among the AFPs.

Because pension funds make such long term and sizable investments, even modest diseconomies, inefficiencies and bad incentives can create enormous welfare losses for the retirees and the economy. Just how large can the potential losses be? Suppose wage growth rate averages 6% p.a., and investment returns are 10% from a less competitive system, versus 12-13% from a more efficient system and less constrained investments[17], and an accumulation period of 40 years. Under these assumptions, a worker with the more efficient investments/manager earning 12% p.a. will retire with over 61% bigger pension. If these advantages add up to 3%, the worker would retire with more than twice the pension.

Dramatic as they are, such comparisons are illustrative of the likely effect of efficiency losses in developing countries. The range of returns on different classes of assets in developing countries and the variation in investment management performance

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[17] In relation to observable long term return differentials between alternative investment strategies and managerial efficiency in already open, highly competitive mutual fund markets in developed countries, these differentials are extremely modest. The conclusions are broadly similar at different wage rates or investment yields. Essentially, each percentage point in average investment returns improves pensions by a quarter or more.

in open, competitive markets (such as the US mutual funds) are much wider. Nor do these estimates consider the secondary effects of better pension fund performances on aggregate investments and growth in the economy, on incentives to add voluntary savings to mandated savings, and the substantial investments continuing for another 20 years or so during retirement.

7. Alternative Design of Private Pension Systems

The preceding discussion suggests the following directions in which the developing countries introducing or modifying social security reforms may improve upon the original AFP-based model. We will call this alternative Personal Retirement Account (PRA) system.

- Permit variable commissions based on assets managed only and not on salaries. Otherwise, levels of commissions will not be regulated.

- Returns on mandated savings must be reported gross and net of all commissions and costs, expressed as percentage of average assets held.

- Remove or avoid imposing return bands (which were never imposed in Mexico, and are being removed in Peru).

- Remove or reduce the minimum return guarantees for the mandated retirement savings system. Some minimum welfare guarantees may be provided, if so desired, under the public pillar.

- Significantly relax investment regime for mandated savings.

- Permit investment in multiple accounts by the affiliates (as is provided by the law in Mexico and is being considered in Chile).

- Permit highly rated banks, diversified mutual funds, and highly rated insurance companies to offer their usual products such as deposit accounts, CDs, mutual funds, and annuities. Leave open the possibility of participation by other financial intermediaries and products as these markets develop.

- Intermediaries must not discriminate against mandated savings accounts.

A full treatment of the PRA system is beyond the scope of this paper. Operational details of such a system would vary depending upon the extent of reforms above implemented and specific country-specific characteristics. But it is useful to sketch the functioning of the PRA system incorporating most of the above recommendations in some details. To do so, we focus on the two functions of the AFPs: collection and investment, and provision of death and disability insurance. Because we wish to focus on the problems of admitting different institutions in managing retirement savings, the third function currently carried out by the AFPs, i.e. payment of retirement pensions, is

excluded as that market is already partly open. For instance, in Chile, a retiree may obtain a programmed withdrawal from the AFP or an annuity from insurance company.

Operation of Personal Retirement Account System. At an operational level, the basic intuition and processing of the PRA system is very simple and similar to the existing Chilean and other AFP systems. The latter essentially permit an affiliate to buy shares in a fund, together with periodic death and disability insurance, which the AFP negotiates on a wholesale basis. The affiliate can transport this balance between different AFPs. Operationally, the PRA system simply extends these investment possibilities and transportability beyond the AFPs. The affiliate can now also move between AFPs as well as certain authorized banks ("buying" deposits), mutual funds or pension funds (buying shares), or insurance companies (buying annuities). The PRA system would differ materially from the AFP-based system in that the balance can be transferred between AFPs as well as banks, mutual funds, and insurance companies. Second important difference is that the affiliate can transfer partial balances between their PRA accounts. The state may tolerate (but will not impose) minimum stay periods dictated by providers, say, up to six months, and small and reasonable transaction costs.

Transfers. The state must ensure that mandated savings are "blocked" in PRA accounts only and are not available for consumption. To achieve this, each PRA offerer would make any payment either directly to another PRA offerer or through a special payment instrument (check, electronic transfer instruction, etc.) that is designated "PRA". In all other respects, the payment would be processed like other similar payments. Banks, mutual funds, pension funds, may even give the affiliates a special check book; (say, for the sake of exposition, color coded "red"). Unlike normal ("green") checks, which can be cashed or used to pay for groceries or utility bills, "red" PRA checks can only be used for depositing into another PRA account. This can eliminate some of the bureaucracy associated with current transfer form based mechanisms between the AFPs.

Investments, Acceptance and Costs. Of course, the accounts offered by these institutions will represent investments in very different portfolios. They may also have different acceptance and qualification requirements and commissions. Bank accounts may involve no minimum balances, and smallest explicit commissions and costs. Some mutual and pension funds may require minimum balances and would charge asset-based commissions and possibly some fixed transaction costs. Periodic statements will show all costs and commissions expressed as percentage of assets under management, and gross and net returns.

Collections. Collections may be made by a state agency, as is the case in Mexico, Argentina, or Uruguay or by a private investment manager (bank, mutual fund, AFP, etc.) with whom the affiliate has the designated account. To simplify oversight of mandatory payroll deductions, the state collecting agency or the employer may be responsible for depositing money in only one designated account of the affiliate for which the affiliate would provide standard payment ID details to the employer.

Death and Disability Insurance. In the AFP model, the AFP chooses insurer. In the simplest PRA model, this choice will be exercised by an investment manager (bank, AFP, mutual fund, or insurance company) designated by the affiliate. However, even greater competition and transparency in insurance purchase is possible since mandated death and disability insurance offers considerable possibilities of complete standardization, parameterization by salary and minimal biographic variables, elimination of adverse selection, oversight of service and investment standards by the regulator, and therefore commodity-type price-based competition. This may be done by permitting the employers to purchase highly standard coverage directly from insurance companies, paid for by payroll deductions. Negotiation of insurance coverage by employers may lower premia and help prevent some of the obvious possibilities of "sweetheart" deals between insurance companies and related AFPs, banks, etc..

Eligibility of Provider. We envisage a situation where the affiliate can buy all the normal bank deposit products -- from passbook savings accounts to CDs, shares in an AFP, mutual fund shares, an insurance company annuity or endowment policy, etc.. The regulators can determine the eligibility standards (e.g. rating of banks and insurance companies), products (to verify full disclosure, correctness of prospectus, etc.) and in case of AFPs and mutual funds, the investment composition. The last will focus on diversification, specifying limits on investments in individual instruments as a share of fund assets and of the issuer's total liabilities. But beyond that, it will permit specialization by permitting funds invested entirely in money market instruments, bonds, equities, etc..[18]

The affiliate may retire investments in the normal fashion depending on type of investment. For instance, retirement of an PRA (normal) mutual fund or CD account would result in a red (green) check from the fund or the bank. The red check can be deposited in the bank, into another mutual fund, AFP, etc.[19]. All PRA accounts will include normal ID particulars, including age, social security number, etc.. When the affiliate reaches retirement age, withdrawals from PRA accounts will be paid by green checks.

A visual representation of the "AFP-based" system and the PRA System would look like Figures 5 and 6.

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[18] Eventually, the laws may even permit direct investments in stocks, housing, etc. with safeguards deemed suitable for the level of capital market development and resources of the individual.

[19] A system of actual "red" and "green" checks, or electronic credits is preferred, because of its transparency and ease of understanding. The system can, however, operate with the more bureaucratic transfer forms used in the AFP system.

Fig. 5: Financial System with the Chilean-style AFPs

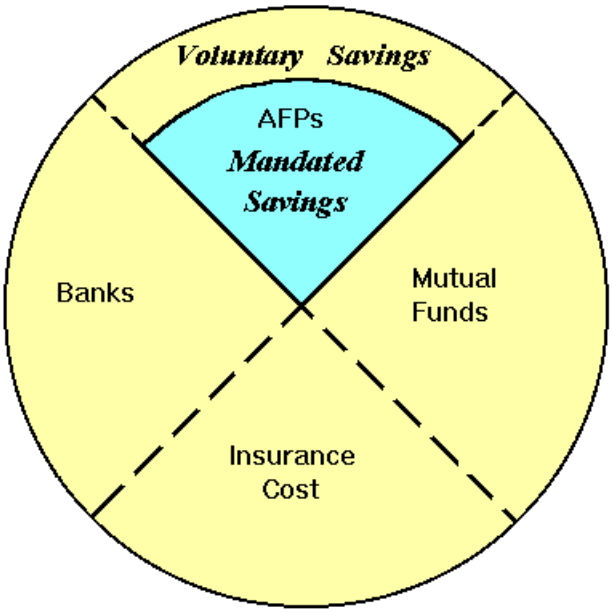
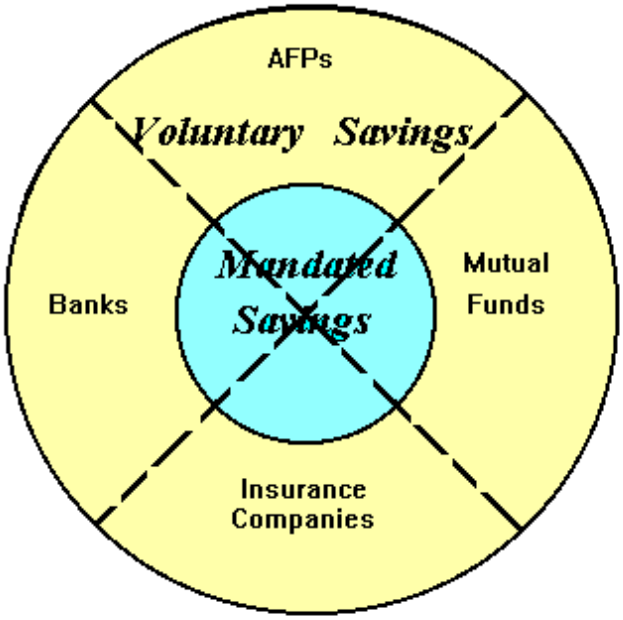


Fig. 6: Financial System with Modified Mandated Savings Management System



In such a system, the distinctions between the pension funds and mutual funds will greatly diminish, especially if as we suggest, a deliberate attempt is made to harmonize *prudential* regulation[20] between pension and mutual funds, elevating mutual fund fiduciary responsibility standards where necessary. In this case, most market participants would form families of mutual funds, some of which will be eligible for both mandated and voluntary savings, some others possibly only for voluntary savings. One may expect that in this case, the current enforcement and supervision role of the AFP regulators may diminish considerably and all supervision responsibility may rest with the securities regulators. Even so, a regulatory body focusing on pension fund issues only may be retained. Its principal function then would be determining eligibility standards for PRA products and intermediaries.

If a country retains important differences between *prudential and eligibility* requirements applicable to pension and mutual funds (e.g. higher capital requirements, higher fiduciary obligations on directors, etc.), pension funds may continue to be formed as distinct legal entities. In this case, the pension regulator would continue to have the comprehensive role of current AFP administrators.

Oversight of PRA accounts, investments, service standards, client complaints, etc. will be carried out in the normal fashion by bank, insurance, and securities regulators with respect to their regulated subjects. However, these regulators would have the additional responsibility of ensuring that withdrawals and transfers from or between PRAs comply with the age and encashability requirements, exactly as such restrictions apply to the AFPs currently. Again, a "red" and "green" check system would greatly reduce the monitoring of compliance.

The proposed PRA system preserves all of the existing financial infrastructure, institutions, and normal client-provider relationships. It permits free, but prudentially regulated, healthy competition between different financial institutions and products, forcing all of them an equal chance at managing mandated savings, without providing AFPs an oligopolistic access. Finally, the substantial setup costs of the pension funds and regulators would be reduced.

8. Transition and Other Issues in Implementation

This section deals with the more general concerns and criticisms about the PRA proposal that may be anticipated and have been raised in the course of prior discussions. The pace and comprehensiveness of implementation of the reforms advocated here would necessarily vary given the initial legal structures, political preferences and influences, market conditions, and so forth. A full treatment of the transition and feasibility issues would necessarily require further work in specific country context. However, many of the generic issues are obviously important and need to be addressed in future work. We

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[20] Relating to diversification requirements, independence of promoters, managers, etc., NAV calculations, valuation, restrictions on front-running, insider trading, fiduciary responsibility, oversight provisions, etc..

group our proposals and possible counter arguments under several headings: commission structure, investment regulations, return bands, competition. The last topic has many aspects: one-fund per manager rule, one account per affiliate rule, and permitting different instruments and intermediaries.

Commissions, Expenses and Net Returns Reporting. Of all the above proposals, charging asset-based commissions and mandating reporting of net returns are the easiest to implement technical reforms, and a necessary requirement for transparency in mandated savings schemes. If principal partners in AFPs have strong reputations capital at stake, these changes can be powerful tools to reorient the AFPs to optimizing net returns for the affiliates. There is little public policy justification in not implementing these changes. But some AFPs that prefer to have a large cushion to cover high marketing and set-up expenses or the inherent lack of transparency of salary-based commissions and gross returns reporting, may be inclined to oppose them. AFPs -- like any new business -- may have higher essential set-up costs initially and satisfy long term needs. But we see no more merit in prepaying new AFPs for future services than say, a new bank, a new mutual fund, or for that matter a new grocery store, or a barbershop -- all of which also cater to long term needs.

Chile and others are now considering permitting loyalty discounts to affiliates increasing with length of affiliation. Loyalty discounts can reduce some of the transfers[21] and are a step in the right direction. But alone, they are only a palliative that will solve few of the distorted incentives of salary-based commission structure discussed above.

Investment Guidelines. Relaxation of investment guidelines -- though relatively frequently carried out in many countries -- may require legislative changes in many countries. We advocate more relaxed investment guidelines not as some kind of libertarian ideal, and this paper should not be read as advocating a single security investment, investment in derivatives, or some other extreme or leveraged strategy. Rather we argue against restrictions on specific classes of securities or their shares in aggregate investments because they rarely achieve their loosely defined purposes or lowering risks or optimizing portfolio, and are more likely to concentrate portfolio risks and eliminate efficient frontier. The sort of investment guidelines -- requiring significant diversification, but simultaneously permitting clearly distinguishable money market, bonds, or stocks funds -- considered prudent for mutual funds would suffice. Indeed, we

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[21] The large incidence of transfers results not from fickleness of affiliates, but from the deliberate and very expensive inducement of transfers by the AFPs. Transfers are not observed as a similarly big problem in banks or mutual funds the world over where transfers are quite unrestricted but net returns and transparency are emphasized except in Japan, where high transfers are observed in mutual fund market. Direct restrictions on transfers by affiliates (longer minimum periods or administrative hurdles) may help reduce some administrative costs if they are not draconian, but again miss the fundamental problem of the perverse incentives of the AFPs, who would be free to spend proportionately more on the fewer transfers possible.

strongly favor equality between mutual and pension fund prudential regulation unless a very clear rationale for distinction can be articulated.

One frequent defense of strict direct investment controls is that it helps maintain greater parity between investment returns across all affiliates. While this is certainly the case, we see no reason why this is a defensible objective of a defined contribution plan, whose participants clearly have very different age, wealth, health and other characteristics resulting in different levels of risk aversion.

Elimination of Return Guarantees. Removal of return bands imposed on AFPs and reducing the minimum pension guarantees may meet with considerable political and philosophical opposition. Irrespective of whatever equity, parity or other plausible objective may be intended of return guarantees from the AFPs, their unintended effects are to reduce or eliminate investment portfolio choice, incentives to educate affiliates, acquire investment skills and the affiliates' ability to punish profligate managers.

A state guarantee of minimum pension or minimum return may be even more difficult to remove and is frequently cited as an important reason for state intervention in portfolio choice. Such a guarantee may well be essential for forging consensus on the reform of PAYG social security system in the first place. However, a minimum pension or return guarantee from the state does not justify drastic restrictions on investment choices. Rather, the cost of such guarantees should be explicitly assessed -- using option valuation techniques -- under conservative scenarios regarding investment returns. A large contingent exposure would imply failure to achieve the basic objective of rationalizing the fiscal burden of the PAYG system, and suggest rethinking the basic parameters of the reform, i.e. contribution rates, retirement age, minimum pension, etc..

More likely, in systems with contribution rates of above 10%, such calculations will show the low level of such contingent exposure relative to the stake of affiliates. For instance, Chile guarantees a minimum pension of around 75% of minimum wages (in 1993). Zurita (1994) shows that the present value of this contingent liability (maturing over some 40 years) amounts to 3.05-3.77% of current annual GDP corresponding to return volatility of 4-7% p.a. [a 95% confidence interval of annual return range of around 16-27%] for all active and non-active affiliates. Even allowing for substantial underestimation, this liability is only of the order of 3-6 months' return on the affiliates' portfolio. If the minimum guarantees are set at a reasonably low level, and some of the changes we propose benefit the affiliates and raise their net returns, they will also tend to reduce the government's cost of the minimum guarantee.

Multiple Funds or Accounts. If return bands on AFPs are dropped or sufficiently relaxed and investment guidelines are sufficiently relaxed, there is little public policy reason to prevent AFPs from offering more than one fund, or affiliates from having more than one account. The minimum balance requirements, additional transaction costs, paperwork and follow-up should all prevent affiliates from frivolously acquiring multiple accounts. The state may impose some maximum market share limits

(as in case of Mexican AFOREs) to prevent monopolistic power or some maximum account limit (say, five per affiliate) to avoid excessive transaction costs.

Multiple Classes of Intermediaries. Many scholars caution against opening up the retirement savings market to multiple classes of interemediaries for a variety of reasons. In order to focus on key issues, we will just consider mutual funds, who invest in other securities, and banks, who offer their own debt claims (as would largely be the case for insurance companies).

The legal structure and investment management processes of a mutual fund and AFP are essentially identical: both separate affiliates' funds from those of the managers and have similar custodial and other characteristics. Some experts argue against participation of mutual funds on the grounds that the mutual funds and their regulators are relatively underdeveloped in many countries. While this may well be the case (Mexico, and to a lesser extent, Chile being the only countries with a noteworthy mutual fund industry upon initiation of social security reforms), it is hardly an argument in favor of setting up AFPs or their regulator who obviously do not exist at all. If current mutual fund prudential regulations are not stringent enough, pension regulators may consider specifying more stringent criteria acceptable for retirement accounts -- which would lead to welcome integration and improvement of mutual fund standards. But we see little justification in eliminating all existing and future mutual funds as potential competitors from retirement savings market.

There are well-known and legitimate concerns about the safety of the banking system, possibilities of fraud, and weaknesses in bank regulation in many countries. Banks also do not segregate, like a mutual or pension fund, the resulting investments in separate "fund", their investments are largely unquoted and illiquid, and there may be unique opportunities for fraud in the banking system. Regulators should certainly prevent investment of retirement savings in weak banks. However, this is easily achieved by restricting the affiliates, as well as AFPs, to banks satisfying certain acceptable rating criteria. Why weaken competition in management of retirement savings by preventing *all* banks from offering bank products to affiliates? Opponents of bank participation in direct retirement accounts ignore the fact that AFPs do invest significantly (over half in Peru) in bank paper, that the AFPs are frequently owned by banks, or that in countries with weak banking system, other financial investments frequently suffer even greater volatility or risks than bank deposits.

There may be better arguments for restricting banks in the initial stage of social security reforms. In countries where banks are the dominant intermediaries, they may grab the largest share of retirement savings initially, investing them in the usual banking business, without contributing much to development of markets for stocks, bonds, asset-backed securities, or commercial paper. Their initial dominant position may tend to exclude, without any special regulatory treatment, mutual and pension funds. There may be thus some merit -- under very limited circumstances -- in providing a special head start of a year or two to presumed longer term investors -- such as mutual funds and pension funds, or limiting offer of bank products to money market accounts (with the usual

investment criteria applying to such accounts). But while the banks may not be the most aggressive promoters of capital markets, our experience is that the underdevelopment of capital markets is far more readily identifiable with very specific aspects of law and regulation, taxation, policy, and government ownership of real sector. And regulatory favoritism between different financial intermediaries is more likely to result in unintended and costly reduction of competition and efficiency rather than development of capital markets.

Suppose there are severe enough problems with the banking sector accounting, quality of data, regulation, and enforcement that rating systems cannot meaningfully discriminate between sound and unsound banks. Presumably, in this case, the state permits *non-mandated* savings to be invested in the banking sector only at great potential losses to the depositors or the society at large. But in such extreme cases of weaknesses in financial condition, regulation and enforcement, exclusivity of the AFPs alone would not protect the affiliates from otherwise unacceptable risks of investing in local financial assets-- especially if the AFPs are related to existing financial institution owners. Such serious problems may well suggest postponing social security reforms until the more fundamental financial sector problems are addressed. If, for political reasons, social security reforms must be pressed forward, participation of financial institutions with deep sectoral and regulatory problems may be postponed until these are addressed. However, this means merely that the participation of the banks should be postponed till these problems are addressed, rather than permanent Chilean style Chinese walls.

Ease of Launch. In terms of launching a private system, the PRA approach would be simpler. The PRA system may seem more complex because more than one type of intermediary is potentially eligible. But because it requires no new institutions on day one, it may be significantly easier to launch. The existing intermediaries (banks, mutual funds, and insurance companies) would suffice to launch the system. Most affiliates would initially invest mandated savings in the banking system and only gradually move into other products as they accumulate larger balances. This could reduce the period between legislative reforms and launching of the system.

Rating. Participation of individual commercial banks in managing pension assets would be subject to eligibility (rating) requirements. Restricting participation of banks to clearly defensible higher rating standards, as well as temporary suspensions during known illiquidity or other problems, may be justified. Insurance companies should be treated similarly as banks, since their PRA products will be liabilities of the institutions. Their participation may be restricted to higher credit rated institutions, and suspended during periods of sectoral maladies. Ratings may not be relevant for pension and mutual funds. Prudential issues concerning the mutual funds' management of pension assets are relatively easily resolved with the definition of retirement eligible products and appropriate custodial and prudential regulation.

9. Conclusion.

Many developing countries in Latin America and elsewhere are undertaking salutary reforms of the national social security systems, and encouraging transfer from the national PAYG system to privately managed funded system. These reforms are frequently bolder than in many developed countries, and undertaken despite many fiscal and political constraints.

These reforms deserve encouragement, but it is worth recognizing some of the limitations of regulation of private pension funds. Such regulation excludes competition from other intermediaries and products, and discourages it between pension funds themselves by providing incentives to invest in similar portfolios. It encourages large marketing costs, without encouraging provision of better investment products or investor education, while denying the affiliates access to simpler unmanaged products requiring little or no management costs. It forces affiliates into similar portfolios with no regard to the large differences in their balances, age, job and financial security, and risk preferences. We find little justification for the "one-size-fits-all" investment regime in basic financial theory. Finally, we find a peculiar front-loaded commission structure that creates further possibilities of higher costs in the future for the affiliates. We show that even small losses in returns to affiliates caused by these distorted incentives can reduce retirement nest-eggs by very sizable amounts. We show that most of the expected tendencies of the system are revealed in Chile and Peru, where the affiliates lost virtually their entire investment income in the initial 3-5 years, due to high set-up and marketing expenses that the affiliates cannot avoid.

This paper proposes that other financial intermediaries, such as banks or mutual funds, be permitted to directly manage mandated savings. Mutual funds can very easily offer retirement accounts similar to those offered by the pension funds. Banks can offer standard banking accounts, CDs, etc. while insurance companies can offer annuity products directly. While pension funds may still be formed, other intermediaries will compete with the pension funds. This would reduce initial regulatory and set-up costs greatly, and force pension funds to manage their investment vehicles within reasonable shares of the value they can add relative to other investments. Simple mechanisms that parallel the arrangements in voluntary savings investment are described to implement such an alternative. Further work should be undertaken to examine and perfect operational arrangements of this alternative approach in individual country situations.

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