

Pension Reform and Financial Markets:
Encouraging Household Savings For Retirement

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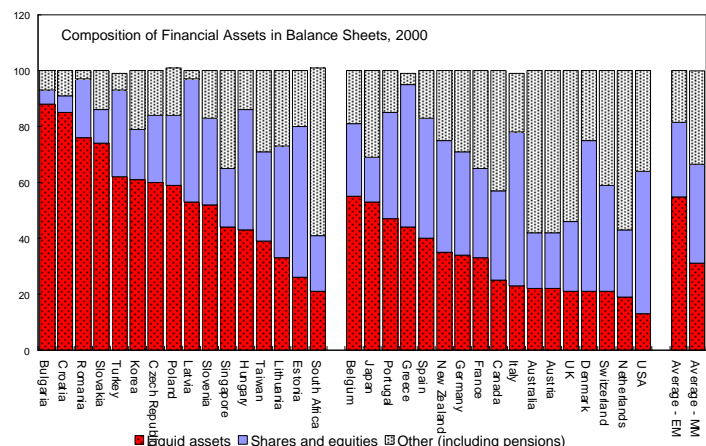
I. Background

1. Pension reform has been a central piece of the policy agenda in many economies facing rapidly ageing populations and an unsustainable public pension system. To address these concerns, many countries have introduced mandatory funded pensions system. In the region, a number of countries have reformed the public Pay-As-You-Go system while introducing mandatory individual-based pension accounts and voluntary supplementary accounts. They include Hungary, Kazakhstan (1998), Poland (1999), Latvia (2001), Croatia, Estonia, and Bulgaria (2002), Russia (2003), and more recently, Macedonia and Slovakia (2005). These reforms entail a shifting of responsibility for old-age income from the public sector to households either by working more or through higher financial savings. However, the experience of early reformers in emerging markets show that challenges persist in ensuring adequate savings and income security for retirement owing to low coverage and high costs. High unemployment rates, relatively low income levels, and low level of financial market development in transition economies compound these problems. Given these challenges, a key question is how to encourage savings in pension assets in order to ensure old-age income security over the longer run?

2. Against this background, this paper tries to examine factors affecting pension fund savings, based on which it reviews some policy implications. Drawing on available cross country data on household balance sheets and pension funds, it examines the relationship of pension fund assets accumulation with some key factors that determine savings behavior. An empirical analysis based on the pension fund data in Latin American countries, which have a longer history since pension reform, is used to assess more formally factors that contribute to the growth in pension fund participation and savings. Finally, based on these findings, it examines policy implications to encourage participation and savings in pension funds.

II. Household and Pension Fund Savings: Some Stylized Facts

3. An examination of household balance sheet data suggests that retirement savings is generally low in emerging markets. While the share of financial assets and non-financial assets such as home ownership in household wealth varies substantially across countries in both the mature as well as emerging markets, survey data for some large emerging markets indicate a much smaller share of savings in financial



Source: Davies, Sandstrom, Shorrocks and Wolff (2006)

instruments. Furthermore, among emerging markets, financial assets are held predominantly in liquid assets, often in the form of bank deposits, with minimal shares in long term retirement savings such as pensions and insurance reserves (Davis, Sandstrom, Shorrocks and Wolffe, 2006, OECD). This tendency likely reflects the less mature state of financial market development and liquidity constraints for households, encouraging precautionary savings in the form of short term assets. Cross country data on pension fund asset holdings, as a percent of GDP, also shows that compared to an average of 90 percent for the OECD countries, non-OECD countries hold only 37 percent of GDP in pension fund assets, with only Chile, Singapore and Malaysia's holdings above this threshold.

Factors Affecting Pension Fund Savings

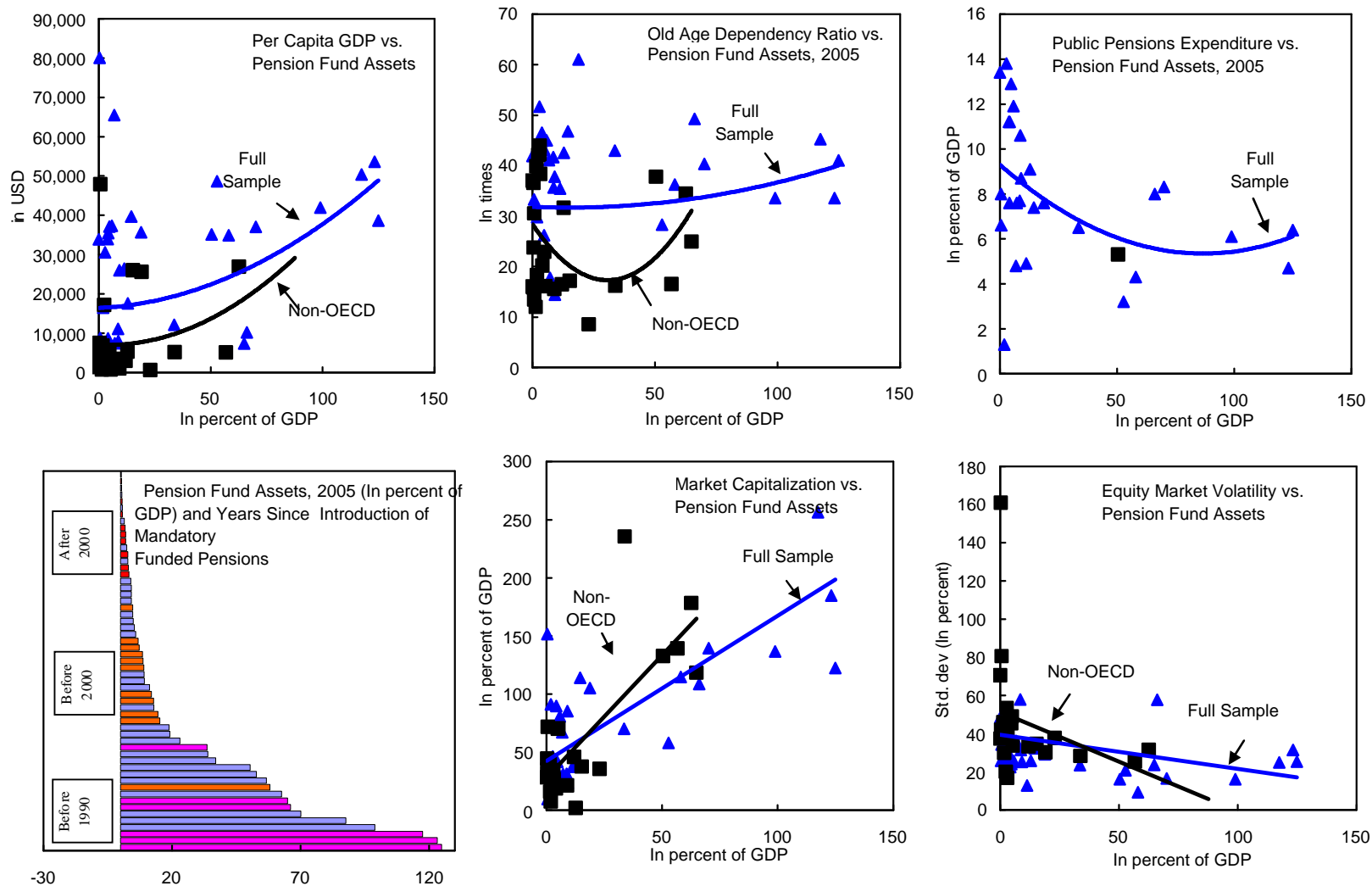
4. Designing policies to encourage pension savings requires an understanding of the factors contributing to savings behavior. An examination of the relationship between key variables that affect aggregate savings behavior suggest generally a similar correlation with pension fund assets:

(i) *Income* is positively related to savings as suggested by both theory and empirical evidence. The permanent income hypothesis states that consumption is based on the level of permanent income and transitory increases in income will translate into higher savings. Similarly, income growth also translates into higher savings, especially if concentrated in higher saving households. This positive relationship is also evident with total savings in pension fund assets.

(ii) *Demographic variables* such as dependency ratios also affect savings behavior. Under the life cycle hypothesis, savings peak during the working age period and gradually decline with aging as retirees begin to dissave and consume out of the accumulated savings. Theory thus predicts that old age dependency ratios would be negatively related with savings rate. To the extent that most pension funds have not reached a payout phase, one could expect a high stock of accumulated retirement savings in aging societies, implying a positive relationship. Cross country comparisons, however, do not show a distinct relationship between old age dependency ratios and the stock of accumulated pension assets. Projected old age dependency ratios or the expected change in these ratios also do not show a strong positive relationship. Assuming pension funds are still at an accumulation phase, this supports the view that retirement savings have not kept pace with the coming demographic shift.

(iii) *Alternative retirement income sources* would imply less need for retirement savings. The literature has found that expected income through public pensions is a significant determinant of private pension savings, reducing the need for private pension fund savings (Feldstein, 1980). The size of public pension expenditure as well as the replacement rate on the public pension system is negatively related to the pension fund asset savings. This relationship holds if the generosity of the public welfare systems and other government transfers does not create incentives for earlier retirement and thus lower income and savings.

Figure 2. Cross Country Data: Relationship between Key Economic Variables and Pension Fund Assets, 2005



Source: Bloomberg; IMF WEO; OECD; United Nations; and IMF staff.

(iv) *Reform of the pension system* is a significant determinant of private pension fund savings. In the Central and Eastern European countries (excluding Baltics), pension fund assets have grown at an annual average of 35 percent between 2000 and 2005 largely due to the introduction of the funded second pillar (Unicredit Group, 2006). In Latin America, pension fund assets under management grew annually by 1 – 1 ½ percent of GDP over the past decade, in line with the G-7 experience since 1980 with Chile averaging annual growth of nearly 3 percent of GDP (Roldos, 2004, Poirson, 2007).

(v) *Financial market development* is also positively related to savings, especially in long term financial instruments such as pension funds. The availability of financial instruments for investment and deep liquid markets is important for investment by pension funds without distorting markets. Empirical evidence points to a strong positive relationship between pension fund assets and equity and bond market development, with the direction of causality going from pension savings accumulation to growth in market capitalization. With the emergence of pension funds, the increased institutional demand for instruments provides a catalytical role in financial market reforms and market development (Roldos, 2007). Pension fund assets are also negatively related to market volatility. Pension funds, with a long term investment horizon and relatively constant level of risk tolerance, provide a stabilizing role in the market while the diversification of the investor base and a more sophisticated information and analysis also facilitates price discovery, contributing to market stability (Walker and Lefort, 2002).

Empirical Evidence on Pension Fund Participation and Savings

5. The experience of the early reformers amongst Latin American countries could provide some useful lessons in understanding factors contributing to pension fund asset accumulation in emerging market countries. Using FIAP data for 8 Latin American countries which implemented pension reforms at least a decade back, empirical tests are performed to identify some key determinants of pension asset savings. Specifically, we test the factors that account for the increase in pension fund participation and the increase in the pension assets per participant. Using a fixed effects panel data estimation methodology, we examine to what extent increases in the pension fund participation is affected by fund performance as measured by the annual returns on the fund, while controlling for structural factors such as years since the introduction of pension reform, and increases in income and the unemployment rate. The equation is specified as follows:

$$d.\log(\text{pension fund participation}_{i,t}) = \alpha + \beta_1.\text{annual rate of return}_{i,t} + \beta_2.(\text{dummy for pension reform}_{i,t}) + \beta_3.d.\log(\text{income per capita}_{i,t}) + \beta_4.d.\log(\text{unemployment rate}_{i,t}) + \varepsilon_{i,t}$$

where, i = country and t = year. Countries included in the sample are Argentina, Bolivia, Chile, Colombia, El Salvador, Mexico, Peru, and Uruguay.

Fixed Effects Estimation
Dependent Variable: D(Number of Participants)

Explanatory Variables:

Constant	0.06	0.05	0.04	0.42	0.02
Lagged Dependent Variable	-0.36	-0.44	-0.48	-0.48	-0.45
Annual Rate of Return	0.002	0.001	0.002	0.002	0.003
Dummy (Reform Years)		0.10	0.09	0.08	0.09
D(Unemployment Rate)			-0.23	-0.19	-0.23
Income Per Capita				-0.05	
D(Income Per Capita)					0.04
Annual Rate of Return*D(Income Per Capita)					0.004
R-Squared	0.16	0.26	0.31	0.33	0.33
F-Stat	1.02	1.67	1.93	1.88	1.68
Sample (adjusted)	1984 2005	1984 2005	1984 2005	1990 2005	1990 2005
Included observations after adjustments	22	22	22	22	22
Cross-sections included	8	8	8	8	8
Total pool (unbalanced) observations	59	59	59	59	59

6. We find that the signs on the coefficients are as expected. Fund performance enters the estimation positively; however, it is not significant at a 90 percent confidence level. Other structural parameters such as the dummy for reform is positive and significant at the 90 percent level of confidence, suggesting that the increase in participants is significant in the early years of reform when indeed participation was driven by mandatory reforms. This result is robust to alternative specifications of the equation. The results also show that an increase in unemployment rate is negatively related to participation, suggesting difficulties in obtaining coverage in transition countries where unemployment remains high. Although the rate of increase in participation seemed higher in countries with lower levels of income per capita, there is a positive relationship between the increases in income and participation. However, neither relationship is statistically significant.

7. Next, we explore the factors affecting the size of pension savings per participant. We examine the impact of pension funds' performance, measured again by the average annual rate of return, on pension fund asset increases, after controlling for increases in contributions due to an increase in the contribution rate and an increase in income per capita. We also include stock market return and government bond rates as proxies for the effect of portfolio gains in the pension fund.

$$\begin{aligned}
 d.\log(\text{pension fund assets per participant}_{i,t}) &= \alpha + \beta_1.\text{annual rate of return}_{i,t} \\
 &+ \beta_2.d.\log(\text{income per capita}_{i,t}) + \beta_3.d.(\text{contribution rate}_{i,t}) + \beta_4.(\text{stock market return}_{i,t}) \\
 &+ \beta_5.(\text{government bond yield}_{i,t}) + \varepsilon_{i,t}
 \end{aligned}$$

Fixed Effects Estimation
Dependent Variable: D(Pension Funds Per Participant)

Explanatory Variables:

Constant	0.07	0.10	0.06	0.07	0.08
Lagged Dependent Variable	0.04	-0.19	0.07	0.14	0.08
Annual Rate of Return	0.014	0.01	0.01	0.01	0.01
D(Income Per Capita)			0.38	0.36	0.36
Fund Contribution Rate (Net of Fees)		-0.40			
Stock Market Return				0.00	
Government Bond Rate					0.00
R-Squared	0.47	0.47	0.54	0.82	0.54
F-Stat	4.97	2.25	5.67	13.5	3.97
Sample (adjusted)	1984 2005	2000 2005	1984 2005	1996 2005	1993 2005
Included observations after adjustments	22	6	22	10	13
Cross-sections included	7	7	7	5	7
Total pool (unbalanced) observations	54	33	54	33	45

8. The estimation results show that fund performance positively influences the growth in pension assets per participant. The relationship is significant at a 90 percent confidence level and is robust to alternative specifications that control for increases in contributions due to higher income as well as increase in asset values due to increased returns in the equity and bond markets. Although the change in the contribution rate is also used, there is little variation in the underlying data and the negative relation is influenced by the data in Argentina when the contribution rates were decreased significantly despite which fund assets continued to grow.

III. Challenges and Policy Implications

9. An examination of the cross country data and preliminary quantitative estimates point to several challenges to private pension fund savings. Key structural challenges which are of particular importance to transition economies that limit pension fund coverage are the high unemployment rate and the relatively low income levels. Pension savings are also low, likely reflecting a still generous public pension system, a low level of financial sector development that limits investment opportunities, and low financial awareness and myopia of long term savings needs. Improved performance of pension funds would increase the replacement rate at retirement and help encourage savings in pension fund assets. In addition to the factors considered above, the literature also points to the impact of other variables such as savings incentives through taxes and demographic factors, although their impact on net savings is less clear.

Enhancing Coverage

10. Given the challenge of coverage of private pension funds in ensuring old-age income security, there will likely still be a need for non-contributory social safety net for retirees (such as a minimum public pensions or other means-tested benefits). For transition economies with large unemployed or informal sectors, this will remain an important source of old-age income. Voluntary savings in pension funds also remain an important channel for retirement income support in countries with relatively large informal sector that would not participate in formal earnings-related schemes.

Role of Choice

11. For countries undergoing pension reform, the role of choice has important bearing on enhancing coverage. Since investors tend to be myopic, placing more emphasis on a mandatory requirement for pension fund savings would help enhance coverage although the extent to which private pension fund savings are mandated is constrained by the size of transition deficits that would be generated by shifting contributions away from public pensions to the private funds. Even if private pension fund savings are voluntary, empirical evidence shows that the use of the default option is crucial for improving participation as many participants tend to be passive investors. As such, several countries are requiring automatic enrollment as a default option to improve participation, while giving the individual the choice of remaining in this default option.

Financial Awareness

12. Efforts to provide financial literacy and awareness are also crucial for generating pension savings. They are all the more important when investors are given the option of choosing a portfolio for investing in the funds. Financial awareness programs are particularly beneficial for lower-income savers. To generate more awareness on the adequacy of retirement savings, information availability including through simulation models to analyze potential net replacement rates at retirement would be beneficial. Together with easy access to account information, transparency of pension fund performance through publication of investment results and financial statements would contribute to financial awareness and greater confidence and reliance on pension funds.

Enhancing Pension Fund Performance

13. Encouraging savings in private pension funds would require boosting fund performance through stronger net risk-adjusted returns. We consider three main policy measures that would directly impact on fund performance: (i) regulations that constrain investment in an optimum portfolio such as regulations on asset allocation and regulations on guarantees. For example, regulators usually put in place quantitative investment limits on asset classes taking into consideration the stage of development of local securities markets and foreign exchange requirements. Minimum guaranteed return are also in place to limit excessive risky behavior. (ii) Tax incentives on voluntary pension savings that directly

increase the net return on pension savings and (iii) Cost minimization through optimal industry structure and fee structures.

Optimizing asset allocation of pension funds

14. International experience shows that in many of the emerging market pension funds, a significantly large share of pension fund assets are invested in government bond instruments while both equities and foreign asset investments are more limited. This reflects primarily a lack of investment opportunities in the form of deep and liquid market instruments. Indeed, despite the presence of limits on equity investments, many funds remain below these ceiling limits. On the other hand, given limited domestic investment opportunities, the ceilings on foreign investments have been more binding and over time, as these ceilings are raised, foreign investments by pension funds have been on the rise. Recent studies have thus advocated some gradual easing of investment limits, especially on foreign investments, to facilitate diversification gains. In addition, easing of investment limits to enable life-cycle investing that allows the portfolio to be better tailored to the demographic profile of the investors is also being sought.

15. Regulations on guarantees on minimum returns also play an important role on asset allocation. Most guaranteed minimum return requirements are set relative to an industry benchmark which has led to a herding tendency in the pension industry. In some cases, the benchmark is set against a synthetic portfolio. There are other important parameters in assessing the criteria of achieving the minimum returns such as the band relative to the benchmark, the period over which the return is assessed, and frequency of evaluation. Increased flexibility in these parameters, including setting of the benchmark and choice of synthetic portfolio, would help reduce the restrictiveness of the Minimum Return Guarantees requirements and the associated sub-optimal herding behavior.

16. In addition to these regulatory measures, there is also a role for government to facilitate investment opportunities for the pension funds through public debt management and measures to strengthen capital market development. Public debt issuance should consider the need for longer term instruments, especially those that can provide an inflation hedge. Debt issuance should also seek to establish liquid benchmark instruments, that can facilitate deep markets. It is also important to ensure that pension funds don't become captive markets for government financing thus providing an avenue for cheap financing. Other measures to strengthen the capital market and boost available supply of instruments include stepping up privatization and issuing corporate governance regulations to improve supply of corporate equities and bonds.

Tax incentives

17. Tax incentives for voluntary savings are common policy tools used for encouraging voluntary retirement savings although their effectiveness remains a subject of debate. The literature has not established it to be very effective particularly for lower income and

liquidity constrained individuals. While there is no evidence of an increase in overall savings owing to these incentives, there is some mixed evidence of its impact on the composition of savings. The effectiveness of tax incentives depend on the substitutability of different savings alternatives. Non-substitutability between savings instruments could arise from the motivation for precautionary savings if the individual is liquidity constrained or other savings motives such as for bequest to heirs. There is evidence that tax incentives do have strong distributional effects with benefits accruing to older and richer individuals who face higher marginal tax rates. Furthermore, fiscal costs of tax incentives are fairly significant.

Minimizing costs

18. Minimizing fees and costs are important to ensure high net returns on the funds. The experience of the early pension reformers shows that over time the industry structure has been trending towards consolidation reflecting a need to gain scale economies to keep costs low. Given the experience with the high costs of private pension funds, policymakers are thus faced with a challenge of maintaining a balance between competition in returns and maximization of economies of scale to reduce costs especially as high fixed costs adversely impacts low-income savers with smaller accounts. To address these concerns, there is a need for centralization of basic services with scale economies such as account management, and collections which is already the case in most Central and Eastern European countries. Policymakers also need to make due efforts to minimize costs from regulatory burden (such as for reserves, reporting, etc.) A few countries have adopted competitive bidding for a few asset managers to reduce costs especially by keeping marketing costs low and have resorted to institutional markets rather than retail markets. They have also sought asset based fees rather than upfront fees focused on new accounts (James, 2005).

IV. Conclusions

19. In emerging markets, household savings for retirement in pension funds are relatively small but growing rapidly. The accumulation of pension fund savings depends upon a number of factors such as the introduction of pension reform, especially through mandatory funded pensions, and fund performance. Macroeconomic and structural factors such as income growth and unemployment rate also play an important role in determining pension savings while pension fund assets lead to a significant development of the financial sector. Based on these factors, the main policy implications for encouraging pension savings for retirement income include the need for:

- Facilitating coverage and old age income through mandatory forms of savings, default rules and other social safety nets,
- Enhancing net risk-adjusted returns through increasing flexibility for diversification gains,
- Reducing costs by harnessing economies of scale and minimizing other burdens,
- Investor protection and awareness through information and education.

V. References

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