



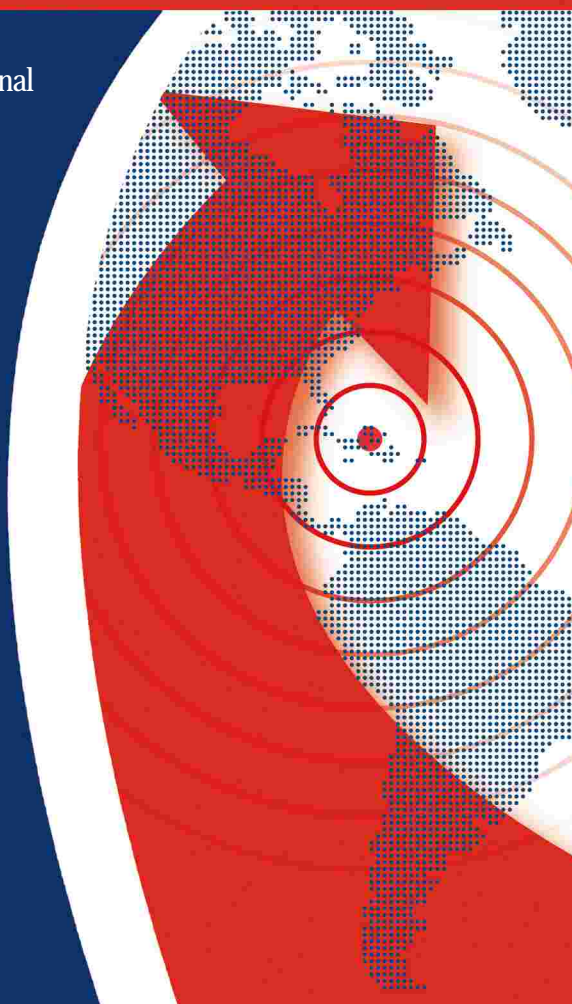
INTERNATIONAL  
FEDERATION OF  
PENSION FUND  
ADMINISTRATORS

# “ADVANCING IN THE STRENGTHENING AND CONSOLIDATION OF THE INDIVIDUALLY-FUNDED PENSION SYSTEMS”

Presentations given at the International Seminar “Advancing in the Strengthening and Consolidation of the Individually-Funded Pension Systems”, organized by FIAP, on May 19 and 20, 2011 in Dominican Republic.



Published and edited by FIAP



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# INTRODUCING THE SEMINAR

Dear Friends,

In the first place I want to thank God for the privilege of being able to share with you in this meeting, which represents and exhibits the great social commitment of all those who participate in individually-funded pension systems in their different roles.

In representation of the Pension Fund Administrators (AFPs) that make up the Dominican Association of Pension Fund Administrators (ADAFP), I want to greet and thank the authorities of both the Dominican Social Security System and those of other sister nations who are honouring us with their presence.

In general, we want to extend a warm welcome to all our guests, both local and international, with the affection and hospitality of our ever-cheerful people, and cordially to offer you our country's best. We want to tell all those



present, representatives of AFPs, financial institutions, insurance companies, investment funds, international bodies and other entities here with us, that it is an honour for us to receive you.

The AFPs in the Dominican Republic, which operate on the basis of Law 87-01 as a special feature under the individually-funded savings scheme, are a fundamental part of the Dominican Social Security System. This system, which is a comprehensive protection structure for the whole population of the Dominican Republic, divides that population into segments that depend basically on each person's ability to pay contributions, and embraces pensions, health and occupational risks. This System, which we launched in our country some 10 years ago as the result of a great social pact, not only constitutes the most important structural reform of the past few decades, but also represents an enormous challenge and a great commitment, above all for general leadership towards society, to achieve greater and more effective protection for the population with sustainable, transparent and institutional economic growth and fair dealing.

Having completed the first 10 years since the enactment of the Law and 8 years since the beginning of operations in the Dominican Pension System managed by the AFPs - which corresponds to wage-earning workers -, we have to recognise the great qualitative leap that our country has taken. The pact achieved between the various social players is undeniable and above all, after these 8 years of Pension System operations, it is possible to see the great advances made in terms of both quantity and quality, with real relevance for the financial and securities market in these early years, due to the impact that the pension funds have had on those markets.

We must emphasise the fact that, prior to Law 87-01, the Dominican Republic had no social protection system. In other words, we did not reform the system

in the specific case of pensions; we created it, designing it and setting it up with the mechanism of saving with individual capitalization. Based on a functional institutional structure and using the centralised collection system method with the highest standards to guarantee its effectiveness, this means that while our aim is to accumulate resources to provide workers with pension at retirement, we also have a more efficient allocation of resources available in our economy.

Among the great challenges that lie ahead is that of continuing to make the transformations and reforms that may be necessary to enable us to go on diversifying the pension funds' investments in both the local and international markets and so gain access to more profitable instruments with appropriate, controlled risk levels. At the same time it is particularly important that our productive structure should be capable of generating more formal, high-quality jobs, so that such employees, together with people in the liberal professions and self-employed workers in general who are capable of contributing, may enter the System and the Contributory Scheme continue to grow, covering an ever-larger number of workers in the country, who will not have to seek assistance or subsidies from the State in future, in order to have access to a pension when they retire.

In this context, the scenario offered by the International Federation of Pension Fund Administrators (FIAP) in celebrating this important International Seminar "Advancing in the Strengthening and Consolidation of the Individually-Funded Pension Systems", for which we have the honour of being host venue, is encouraging for our System. This places us in the centre of the debate and analysis of recent experiences and especially of the points of view of the AFP industry worldwide, with its undeniable impact particularly in the economic aspect, in being able to respond to and meet its social objective, which is to provide the workers with pensions.

It is undeniable that the appearance and development of individually-funded savings systems make a strong impact on traditional social security culture and test societies' ability to face up to and find answers for the weaknesses exposed in the traditional schemes.

No less striking are the challenges offered by the new scheme, and that is why we need to look at these realities, transparently and socially, all together. We shall have the opportunity on this occasion to discuss and bring ourselves up-to-date with lectures given by speakers who are the most highly-qualified in their different branches at international level, so we predict that this seminar will lead to great successes.

Thank you very much.

**Kirsis Jáquez**

Executive President

Dominican Association of Pension Fund Administrators (ADAFP)

# INTRODUCING THE SEMINAR

A very good morning to you all,

A special greeting to all our international visitors, to the system's officials, Mr Joaquín Gerónimo, Superintendent of Pensions; Ms Nelsida Marmolejos, Director of the Information and Social Security Members' Defence Department (DIDA); Ms Kirsis Jáquez, Executive President of the Dominican Association of Pension Fund Administrators (ADAFP) and the representatives of the International Federation of Pension Fund Administrators (FIAP).

It is a great honour for us to welcome the organisers of this event, FIAP and the ADAFP, and thank them for having chosen the Dominican Republic to host this important international event. We hope to be able to fulfil one of the conditions that has made us, without any doubt, one of the countries that makes its visitors feel most welcome, by showing you all the human warmth that characterises us as a people. At the same time we hope to take advantage of the opportunity provided by events of this type to share experiences in this world of individually-funded pensions.

Social security was a pending issue in the Dominican Republic. With the passing of Law 87-01, a complex process has begun: to build a system of social security that will enable a start to be made in tackling this pending task in our country. Almost the only people covered in the pensions area were public employees and a very few low-paid workers. In addition we have to some extent been unable to sustain that old social security system, and we have a great social debt, even with those people who in their time contributed to the pension system of that period.

This is why Law 87-01 opens up a tremendous opportunity to enable the Dominican society to begin to balance the social deficit represented by not having a social security system for everyone. I believe that we have a great challenge in the building of that system and we have begun the task under great difficulties. However, so far I would say that we have done it well.

In the area of pensions: in the contributory scheme we have a pension system consisting of five Pension Fund Administrators (AFP), which have made their mark by their professionalism and their implementation of competitive game-rules that favour healthy rather than unfair competition. This event is an example of how the AFPs as a whole see their role, and the way in which they are fulfilling part of the responsibility that corresponds to them. For us this is a great strength of the individually-funded system in the Dominican Republic.

We have many challenges in pension matters. Unlike the health area, in the pension area the pressure today is less. Although this can give us the peace and quiet needed to develop the system, it may become a big danger, because we do not have that social pressure represented by the daily complaints about health. It is therefore we ourselves that have to generate the motivation to move forward, so that we can build a pension system that fulfils the purpose assigned to it by the law. It is very important that, by providing survivorship

and disability pensions in the short term, we show the way to the old-age pensions that those who are working and paying contributions in this pension system will receive in the medium term.

We have the obligation and challenge of making the performance of the pension funds better every day and of continuing the effort to expand the range of instruments in which the pension funds can invest. We have made progress in this sense, but we still have a long way to go in broadening the limited abilities that Dominican society has for investing these funds, due precisely to the limited levels of economic development in that society. The enormous flow-rate represented by the accumulated funds in the individual funding accounts must serve as an important element for developing investment instruments that are currently unknown in the country and for developing the securities market.

It is important to bear in mind that the main and only final purpose of these funds is to guarantee the pension of each of their owners but, at the same time, they should produce a virtuous circle in which, by contributing to national development, they produce more and better jobs that in turn strengthen the social security system. The Dominican economy generates few high-quality jobs and has a contributory sector of only 30% of the economically active population. This makes it necessary to expand this part of society which, by its contributions, enables the other sectors of the population to be covered.

This aspect will have to be implemented using all the mechanisms offered us by the system to guarantee security for the funds and a better performance. It is crucially important to educate the various sectors of opinion and the people in general so that they really understand what is done with their funds, because in this system it will be fundamental to maintain the credibility and transparency of those acting within the pension system, a fundamental matter when third-party funds are being handled.

The good news is that we are making progress: we have a system which is growing stronger every day and the vital sectors of the system, i.e. the workers, the employers and the government, are willing to make the development of this system a reality and fulfil all the commitments acquired when Law 87-01 was enacted.

Thank you very much, and may we be able to learn from the experience of other countries in these days, to keep moving forward along the road to a social security which will guarantee worthwhile pensions for all Dominicans, both men and women.

**Julio Sanz**

Deputy Minister of Labour, Dominican Republic

# INTRODUCING THE SEMINAR

My first words must be to thank the Dominican Association of Pension Fund Administrators (ADAFP) and its president, Kirsis Jáquez, for organising this conference together with the International Federation of Pension Fund Administrators (FIAP) in this wonderful place, Dominican Republic.

We have called this seminar “Advancing in the Strengthening and Consolidation of the Individually-Funded Pension Systems”. It is a strong name that calls us to work hard in order to continue improving the response that we have been giving for many years to the problem of social security and pensions, and we are doing this shortly after weathering one of the worst economic crises that the world has known in recent times, a crisis that certainly had a very serious effect on the valuation of the assets in which the pension funds are invested.

The aforementioned fact caused many of this system’s enemies to call for the reforms to be reversed, with a return to the old pay-as-you-go systems. Fortunately, however, the assets had made a complete recovery of their pre-crisis values shortly afterwards, while the pay-as-you-go systems were hit much harder, clearly revealing the fiscal deficit that they are producing in the economies where they still exist.



I believe therefore that the sight of the failure of the pay-as-you-go systems opens up an opportunity. They have had to confront this situation by making parametric changes such as changing the amount of the pension, postponing retiring age, or modifying the pension entitlement requirements, all of this within a framework that they themselves have called “defined benefit”, though in fact they have been obliged to change the definition of those benefits. This is therefore an opportunity for us to continue advancing and to show how a second pillar based on individual capitalisation of savings, together with a well-focused non-contributory first pillar and a third pillar of voluntary savings, constitutes the best response to the problem of workers’ pensions.

During this seminar we shall be looking at three issues that seem to us to be extremely important for reinforcing and consolidating the Individually-Funded Systems. The first is to review the regulation and management of the investments, looking at the indicators of these systems for both risk and yield. The second is to review the level and stability of benefits during the payout stage. Many of our systems are already maturing, in the sense that they are already providing a considerable group of our members with the benefits that correspond to them according to the efforts they made to save, and we therefore have to review the stability of these benefits, checking on whether the contribution rate is correct, whether the ages for retiring are what they should be and whether the existing pension options make it possible to provide a more stable benefit over time, particularly in a scenario in which life expectancies have risen to such a great extent.

Finally, the third issue consists of reviewing the situation that has occurred in certain Central and Eastern European countries, where resources or contributions have been diverted from the second individually-funded pillar to the public pay-as-you-go pillar, under the pretext of financing better pensions. However, the only real reason for doing this is to cover the fiscal deficits that the pay-as-you-go systems are creating in those countries.

The Individually-Funded Systems have been running for different lengths of time. In my country, Chile, the system will be 30 years old this year; in Peru, 18 years old; in Poland, 12; in Colombia, 15; in Mexico, 14; in the Dominican Republic, 10 and in Uruguay, 15. So this is now a long enough period of time to allow us make some evaluations, draw some conclusions and see how this system has contributed to the improvement of workers’ pensions, and will decidedly continue to do so.

The system has had real annual yields that fluctuate between 8% and 9% around the world, which makes one think that those who have contributed regularly will be able to achieve pensions very similar to the wages they received during their active lives. That is certainly one aspect of the pension, though there are other variables, such as contribution density, that are not in our hands and yet we have to take responsibility for them. In our Latin American countries in particular we do not have regular contribution payments, due to defects in the labour markets or informality of jobs. We must therefore see how to correct that situation so that everyone can have the possibility of a good pension.

We also have to revise life-expectancies. These are rising exponentially and yet we have fixed retiring ages as though life-expectancies were static. However, not only have we provided an appropriate answer in terms of pensions, but also these systems have contributed enormously to the economic development of the countries, the deepening of the capital markets and the formalisation of employment. There is a study that was made some time ago, prepared by our speaker, friend and economist, Vittorio Corbo, together with the economist Klaus Schmidt-Hebbel, which stated, when analysing the Chilean case, that 10% of the growth in the country's product had its origin in the whole process of saving and investment associated with the pension system based on individual accounts.

This new system of pension has also left its mark on improved corporate governance. The fact of pension funds' being invested in different instruments and in the shares of public limited companies has made it possible to insist on improvement in the corporate governance of those companies. This has given them better access to financing via credits, which has definitely resulted in those companies being awarded a higher valuation.

It has also been demonstrated that these systems are more resistant to economic crises. Although they suffered a devaluation of the assets during the financial crisis, the pre-crisis values have already been recovered in every country, whereas all the pay-as-you-go systems have had to make parametric changes in the benefits that they had defined.

I also feel that it is important to emphasise how a system such as this one, that has individual accounts with private ownership of the funds, gives the systems greater stability. There are some cases that unfortunately refute this, such as those of Argentina and Hungary, but nonetheless I think that the ownership rights established in, and innate to these systems provide greater stability.

Having made this balance which, as you can see, is a very positive one, what remains to be done? I feel that our great challenge, over and above a few corrections such as those we shall be looking at during this seminar, is to involve our members, involve our workers, in the challenge of building up their pensions. This is a system in which the worker entrusts his/her savings to us in order to obtain a pension at the end of his/her active life, but we cannot allow workers to remain in a state of total ignorance, disillusionment or lack of interest throughout the whole of that period. We must somehow manage to get them involved in building up their pensions, and we shall achieve that by improving our communications with them but also by setting up specific mechanisms that have proved to be extraordinarily efficient in producing a narrowing of the gap between the worker and his/her pension system.

I refer, for example, to the Multi-funds. With multi-funds the worker is faced with various alternatives: which fund to pick, which portfolio or risk-return combination best suits my profile, etc. Here, then, the member has necessarily to find information and by doing so, the gap is narrowed and he/she understands and becomes familiar with his/her system. Voluntary Pension Saving (APV) is another tool that will have to be implemented with great vigour, especially when we look at the increase in life-expectancies. Furthermore, when that worker makes an extra contribution that is not compulsory, he/she is also narrowing the gap between him/herself and his/her system. That is why I believe that our challenge, in addition to improving the systems with specific mechanisms by exchanging the experiences that we have in the countries that already have a long history of applying this system, is also to achieve rapprochement and involvement with our workers, so that they realise that the building of their future also depends to a large extent on themselves.

Once again, I thank the ADAFP, Kirsis Jáquez and the government of the Dominican Republic, represented by its Deputy Minister of Labour, and hope that this seminar will help us to continue on the path that we have marked, which is summed up so well in the title of this seminar.

Thank you very much.

**Guillermo Arthur**  
President of FIAP

# INTERNATIONAL FEDERATION OF PENSION FUND ADMINISTRATORS (FIAP)

FIAP was created in May, 1996. The legal status of this international institution was granted on 29th June 2004 in the city of Montevideo, Uruguay, by Supreme Decree Nro 801, issued by Uruguayan Ministry of Education and Culture. It currently has nineteen “full members” in seventeen countries and seven “collaborating members.” The “full members” are associations, federations, chambers or other institutions that represent the interests of the pension industry in the respective country. Thus, the following countries are represented in FIAP: Bolivia, Bulgaria, Colombia, Costa Rica, Curaçao, Chile, El Salvador, Spain, Kazakhstan, Mexico, Panama, Peru, Poland, Dominican Republic, Romania, Ukraine and Uruguay.



The number of workers in the FIAP member associations and institutes was 114,711,102 as of December 2010, and they have accumulated more than 571 thousand million dollars in their respective individual account.

The “collaborating members” are mainly companies that provide services and products to the pension fund management industry and currently include AEGON Global Pensions; Amundi Asset Management; BlackRock, Inc.; M&G Investments; Pictet & Cie (Europe) S.A.; Principal Financial Group and State Street Global Advisor.

The main objectives of FIAP are:

- To contribute to the success of the new pension systems based on individual funding and private management.
- To promote reforms to pension systems that lead to the adoption of pension programs based on individual funding and private management.

In order to achieve these objectives FIAP has undertaken intense activities that include the holding of Seminars, Conferences, Workshops and Round Tables, specialized publications, the creation of a Web site, permanent contact with international organizations and authorities of the different countries, support of its partners in the promotion of improvements to the regulations of the respective countries, participation of its Chairman and the Steering Committee in propagating activities of the new individually funded systems, drawing up of documents to answer criticism faced by such systems and preparation of Guidelines to assist in the better design of individually-funded systems regulation.

# INAUGURAL LECTURE



# MACRO/FINANCIAL EFFECTS OF THE FINANCIAL REFORMS

VITTORIO CORBO<sup>1 2</sup>

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*2 He wishes to thank Jorge Desormeaux M. for his excellent help in preparing this paper.*



The recent Great Financial Crisis (GFC) has left a legacy of problems that are causing great difficulties in the present economic recovery. This phenomenon has been well documented by Carmen Reinhart and Kenneth Rogoff<sup>3</sup>, who use data from the past 800 years to show that recoveries from financial crises are exceptionally slow. In our case, neither Europe nor the United States have yet recovered the level of output that existed before the crisis.

The legacy of the GFC has been weakness in the financial systems of industrial countries, uncertainty and excess supply in the housing markets of countries that experienced real-estate bubbles, and high levels of unemployment and debt in industrial countries. Financial system damage is most severe in Europe, and this is reflected in the potential consequences of a sovereign debt crisis by peripheral EU countries. In the U.S. the most outstanding problems are excess supply in the housing market and the high debt levels of many families, which have been forced to cut back on their consumption (especially in durable goods). Reducing the high levels of unemployment is going to call for an adjustment in which many people work in other fields, where they will have a lower productivity level. The burden that these problems represent is going to last for some time, reducing world growth – above all in the developed world – during the coming years.

Other factors that contribute to a tenuous world growth are problems in the Middle East and North Africa (MENA), which have pushed up oil prices. There are also the difficulties in the peripheral countries of the European Union (Greece, Ireland and Portugal) which have resulted in a rise in debt spreads and the cost of credit in other countries in the Euro Zone, especially Spain and Italy. The peripheral EU countries are facing a complicated fiscal scenario and, in the cases of Portugal and Italy in particular, have shown an average economic growth of less than 1% per year for the 10 years prior to the crisis due to competitiveness problems. The most

3 Reinhart and Rogoff (2009).

likely result is that Greece, Ireland and Portugal will have experiences similar to those of Latin America following the debt crisis in 1982 and will find themselves forced to propose a renegotiation of their sovereign debt, because quite simply they have no way of paying it.

The costs created by the GFC for the world economy are high and long-lasting. Nobody wants to see a repetition of this event in the near future. The vital question is: what have we learned from this crisis to help us create a more robust financial system, and what will be the effects of the measures with which we are implementing these lessons?

There are three initiatives of financial regulatory reform that are especially relevant. The first, on which this article will be concentrating, are the standards of capitalisation and banking liquidity found in Basel III. The other initiatives – the Dodd-Frank Wall Street Reform and Consumer Protection Act of the United States and the European System of Financial Supervisors of the European Union – have been approved, but their final effects have not yet been defined. Both initiatives grant the regulatory authorities great freedom of action to dictate rules, methods and goals. It is not possible to determine what macro-economic effects these will have until the details of the new regulations generated by these initiatives are published.

#### **I. Weaknesses of the banking system before the crisis**

The banking system is one of the most strongly regulated sectors of the financial system around the world. This is due both to the banks' importance in the flow of credit<sup>4</sup> and to their susceptibility to financial panics, which were endemic in the U.S. and the United Kingdom towards the end of the 19<sup>th</sup> century. Given that there was regulation and an institutional framework dedicated to supervising their compliance, why were many American and European banks brought to the brink of bankruptcy during the crisis?

Banking regulation and supervision have been organised according to two schemes. In the first place, the need to regulate and supervise banks that operate in a multiplicity of countries has led to international standards being developed. The most important international banking standards are the Basel Agreements,

4 This varies depending on the importance of the capital markets. Prowse (1996) states that banks provide 16% of all corporate debt in the U.S.A., 45% in the United Kingdom and 80% in Germany.

which stipulate standards of capital (accounting definitions, minimum levels, etc.). Secondly, the intervention of banks in a state of insolvency (so as to restore order in the financial system) usually requires public funding. It is unacceptable that a country should take on a commitment to pay in the case of a crisis while having no right to speak or vote on how to prevent crises from happening. Thus, banking supervision is carried out at a national level. So, weaknesses in the banking system may be international (inappropriate standards) or local (inadequate supervision of the banks by local authorities).

There were weaknesses of both types before the crisis: the proportion of debt in the funding of the financial sector was too high, and it was optimised to use low levels of capital and facilitate transactions in a friendly environment (healthy growth, low inflation, rising asset prices and low macro-economic volatility). This optimisation eliminated margins of capital and liquidity that were “excessive” for that environment, so that when the circumstances changed, the banking system’s reserves of capital and liquidity turned out to be insufficient. At the same time, the supervisory authorities approved these practices.

Northern Rock, the first British bank to suffer a run in 150 years, is a good subject for analysis. Northern Rock had the explicit goal of expanding its loan portfolio at an annual rate of 25% and had a dizzying level of debt: its total assets were almost 60 times its share capital in June 2007. The bank also had a precarious funding strategy: it funded 20 and 30-year mortgage loans with 30-day debt. With the arrival of the financial crisis, a combination of the impairment of its credit portfolio and the freezing of the market in short-term commercial paper brought it first to a liquidity crisis and, shortly afterwards, to bankruptcy. The Financial Services Authority (FSA) of the United Kingdom, a body specialising in the supervision of the financial system, failed to react to any of these warning signs. What is more, it gave Northern Rock permission to use a more generous method of handling credit risk on 29<sup>th</sup> June 2007, which allowed the bank to increase its provisional dividend by 30.3% on 25<sup>th</sup> July 2007, as a result of an “anticipated excess of regulatory capital during the next 3 to 4 years”.

What happened with Northern Rock was not an isolated mistake. Lloyds TSB and Royal Bank of Scotland (RBS), two of the three most important banks in the United Kingdom, both had levels of financial leverage around 30 times their share capital at the end of 2007 and Barclays, the third, had a leverage ratio of 52.7. At the end of 2008, Lloyds and RBS had leverage ratios over 40 times, while Barclays was 56 times its net worth. All these banks subsequently needed to be rescued by the British government.

## (International) regulatory failures

Why did the international agreements fail to impose sufficient standards of capital to resist a severe financial crisis? Mainly because they were not designed for that purpose. According to the Turner Review (2009):

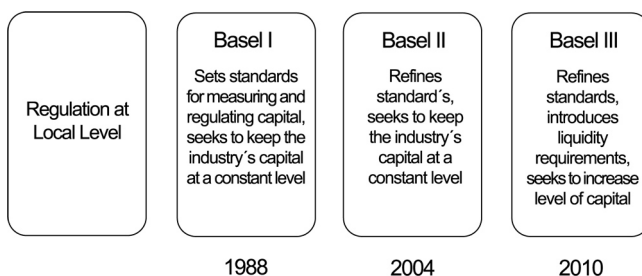
These absolute minimum [ratios] were defined at the time of the Basel I accord which was implemented in the late 1980s. They were not based on any clear theory of optimal capital levels, but rather represented a pragmatic compromise between different objectives. There was a desire to achieve a level international playing field: a perception that some banks were very lightly capitalised: but there was no intention to drive a generalised increase in the capital requirements of all banks.

This pragmatic approach to determining overall capital levels was carried over to the Basel II regime. While Basel II introduced a new approach to the definition of the relative capital requirements to be held against specific asset categories (see Section 2.2 (iii) below), it was deliberately 'calibrated' to ensure that the overall level of required capital across the banking system was broadly similar to that which the Basel I regime required.

In other words, the Basel Agreements were made with the idea of defining a common capital standard, while maintaining a relatively constant level of capital in the industry. There was never any guarantee that this level was optimum or sufficient. Furthermore, a serious problem with this method is that it does not seem to have taken into account the banks' efforts to evade regulation. It is reasonable to assume that, prior to the first Basel Agreements (Basel I), the banks held the lowest levels of capital that was reasonable under local regulation and market discipline. Basel I was designed to maintain these levels of capital – but loopholes in the scheme allowed banks to reduce their real level of capital while at the same time complying with the regulatory capital. The second Basel Agreements (Basel II) were then designed to hold the level of capital that existed under Basel I. Inevitably, as the banks learned to evade the new rules, real capital fell further.

DIAGRAM 1

DEVELOPMENTS IN THE REQUIREMENTS FOR BANKING CAPITAL OVER TIME



SOURCE: AUTHOR'S OWN WORK.

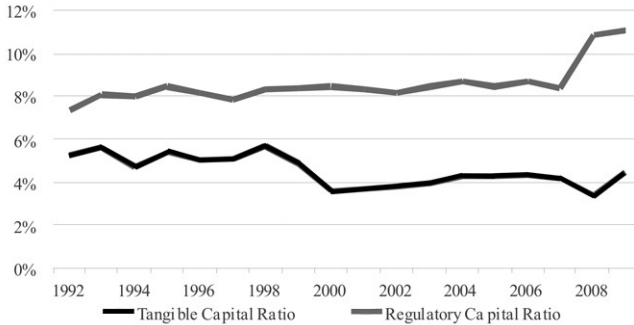
In addition to fixing levels of capital that were too low, Basel II demands different amounts of capital to back assets with different risk profiles. The problem is that the risk rating of a debtor changes with the economic cycle: when everything is going smoothly, nobody doubts the customer's ability to pay. In moments of crisis the debtors' risk increases and the risk rating worsens. This leads to the paradoxical situation in which banks reduce their capital levels (and their potential to absorb losses) at moments of high growth, and are then forced to increase them dramatically during episodes of crisis, when it may already be too late.

The above problems led to an erosion of the real capital held by the banking system, even though at the same time they were complying with the regulatory requirements. The figures of two large American commercial banks, JPMorgan Chase and Citigroup, illustrate this phenomenon very clearly. On the next page we show a comparative picture of the development of the ratio of regulatory capital over risk-weighted assets (Tier 1 capital ratio: see section III) governed by the agreements on capital, and another "hard" capital ratio (tangible share capital over tangible assets) which was used during the crisis to measure the real solvency of financial institutions.

As can be seen, the relationship between the two capital ratios is tenuous in the best of cases and real capital tended to fall, despite the fact that the Basel regulatory indexes showed no deterioration. The resurgence at the end of the graphs reflects the last-minute attempts of both institutions to insure their solvency during the GFC.

GRAPH 1

## CAPITAL RATIOS FOR JPMORGAN CHASE\*

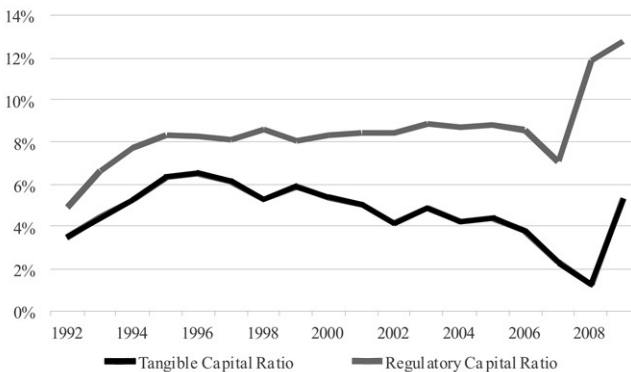


SOURCE: 10-K REPORTS FROM THE SECURITIES AND EXCHANGE COMMISSION (SEC). LAST FIGURES CORRESPOND TO THE 10-Q REPORT FOR THE FOURTH QUARTER OF 2009.

\* GRAPH SHOWS INFORMATION FOR CHEMICAL BANK UNTIL 1995; FROM 1996 ONWARDS IT REFLECTS THE ACQUISITION OF THE CHASE MANHATTAN CORPORATION, THE NAME UNDER WHICH THE BANK OPERATED UNTIL 1999. CHASE MANHATTAN BOUGHT J.P. MORGAN & CO. IN 2000, BECOMING JPMORGAN CHASE.

GRAPH 2

## CAPITAL RATIOS FOR CITIGROUP\*



SOURCE: 10-K REPORTS FROM THE SECURITIES AND EXCHANGE COMMISSION (SEC). LAST FIGURES CORRESPOND TO THE 10-Q REPORT FOR THE FOURTH QUARTER OF 2009.

\* GRAPH SHOWS INFORMATION FOR CITICORP UNTIL 1997; FROM 1998 ONWARDS IT REFLECTS THE MERGER BETWEEN CITICORP AND TRAVELERS GROUP WHICH CREATED CITIGROUP.

## (Local) supervision mistakes

The next question is: Why did the agencies responsible for ensuring that the banking system acted prudently fail to do so? The supervision problems were local and varied in importance. Some agencies, such as the FSA in the United Kingdom, showed too much confidence or complacency in their work. Others, such as the Banco de España, supplemented the international regulations with more demanding standards and monitored the activities of their banks very closely.

The GFC emphasised the fact that the problem has less to do with the structural design of the supervisory agencies (both the system of fragmented supervision and overlapping roles in the U.S. and the consolidated system of dedicated agencies in the United Kingdom failed), and more to do with their implementation. The SEC, which was incapable of identifying the problems in investment banks (and failed to detect the Madoff fraud, despite having been warned on 6 separate occasions of obvious problems in the company) suffered from bad leadership, lack of resources and insufficient staff. Other problems that have beset financial supervisors include lack of initiative in tackling problems, lack of coordination with other agencies, and political influence that restricts the supervisor's skills and tools.

The above problems are well-known in regulation literature. *Core Principles for Effective Banking Supervision* published by the Bank for International Settlements (BIS), originally published in 1997 and revised in 2006, stresses how important it is for supervisors to have political independence and clear goals, for them to monitor the risk-management systems, limit large exposures to asset classes within the system, control the risk of a liquidity crisis, keep permanent staff inside the financial institutions with responsibility for monitoring their health, and to have authority to take corrective measures.

The banks of Latin America and Asia generally weathered the crisis well. Both regions have had severe financial crises in recent decades and the lessons from these are still fresh, with the result that they have modern regulations and the supervisory agencies have money, autonomy and the will to carry out their work.

The following table shows some of the most recent crises. One of the most expensive was that of Sweden in 1991, which was associated with a real-estate boom: one year before the crisis there was a fiscal surplus of 3.8% of GDP, which ended in a deficit of 11.6% in 1993. Another very costly crisis was that of Finland in 1991, when the development model followed by the country (that of trading with the Soviet Union) came to an abrupt end, leading to a fiscal deficit of 10.8% of the GDP in 1994.

TABLE 1

FISCAL BALANCE OF THE CENTRAL GOVERNMENT (% OF GDP) AND CHANGE IN GDP PER CAPITA

Country	Year of the Crisis	Balance in the year before the crisis	Date of lowest point in fiscal balance	Lowest point of fiscal balance	Increase or fall in fiscal balance	Change in GDP per capita (%)	Duration of the crisis (years)
Argentina	2001	-2.4	2002	-11.9	-9.5	-21.6	4
Chile	1980	4.8	1985	-3.2	-8.0	-15.4	3
Colombia	1998	-3.6	1999	-7.4	-3.8	-6.3	2
Finland	1991	1.0	1994	-10.8	-11.8	-11.4	4
Indonesia	1997	2.1	2001	-3.7	-5.8	-15.0	2
Japan	1992	-0.7	1999	-8.7	-9.4	-0.2	1
Korea	1997	0.0	1998	-4.8	-4.8	-6.4	1
Malaysia	1997	0.7	2000	-5.8	-6.5	-9.5	1
Mexico	1994	0.3	1998	-2.3	-2.6	-7.9	1
Norway	1987	5.7	1992	-2.5	-7.9	-0.7	1
Spain	1977	-3.9	1977	-3.1	0.8	-0.5	n.d.
Sweden	1991	3.8	1993	-11.6	-15.4	-6.7	3
Thailand	1997	2.3	1999	3.5	-5.8	-13.7	2

SOURCES: REINHART AND ROGOFF (2009).

## II. Reinforcing the banking system

The discussion on how to reinforce the banking system is occurring by two different routes. The Basel Committee of Banking Supervision (BCBS) and the Financial Stability Board (FSB) are working on the regulatory aspect of the system and have already announced a series of impressive measures to achieve stricter banking regulation that is more difficult to evade and avoids creating distortions in the credit cycle. As we stated in the previous section, these bodies had already published a series of effective principles on how to supervise the banking system in an appropriate manner, so there is little that they can do to improve this aspect. The reforms in the structure and implementation of the financial supervisors are being carried out by local initiatives.



The new banking regulation will have two components: the so-called micro-prudential regulations that look at each institution separately and seek to ensure that its health and business practices are reasonable, and those that focus on the aggregate risks of the financial system as a whole and look for concentrations and bad practices that may lead to a systemic crisis, which are called macro-prudential regulations.

The following are the most important micro-prudential regulation reforms being urged forward at international level:

- (i) An important change in the definition of banking capital. A higher proportion of capital will have to consist of common equity and retained earnings. The increase in this requirement is going to have implications in financial markets, as over the next few years banks will need to issue around USD 120 thousand million in shares per year, for about 6 to 7 years, producing a steep increase in the supply of these instruments and diluting the existing ownership structure in banks.
- (ii) Higher minimum levels of capital will be stipulated to align incentives more closely with market, credit, re-securitization and counterpart risks.
- (iii) An additional requirement will be implemented concerning the debt-to-total-capital ratio (until now, all requirements were debt-to-capital adjusted by risk), to control the relationship between assets and capital.
- (iv) Work is also being done on introducing a liquidity coverage ratio (to cover a month of net cash outflows) and a net stable funding ratio (or NSFR) designed to reduce the difference in term between assets and liabilities.
- (v) Although the direct role of the Basel Committee and the FSB in supervision is necessarily limited, an attempt will be made to provide evaluations and recommendations on the work of the local supervisors.

On the other hand, at macro-prudential level the reforms include:

- (i) Setting up an additional level of reserve capital (2% of the risk-weighted assets). Those banks that do not comply with this reserve will be submitted to restrictions in terms of their distribution of profits and will be supervised more closely.

(ii) Setting up in addition a cyclical minimum that can be increased (up to 2.5% additional capital over risk-weighted assets) in periods when there is strong growth in credit and the beginnings of bubbles are seen in asset prices. In other words, this is an anti-cyclical cushion.

(iii) The problem of the shadow banking system is attacked indirectly with capital requirements for certain special investment instruments (SIVs<sup>5</sup> and conduits<sup>6</sup>) not included in balances, by including counterparty risks and out-of-balance exposure in debt ratios, and by reinforcing supervision.

We shall deal with some of these points in greater detail in the following section, in order to be able to comment in depth on their economic and financial impact.

### Capital requirements

Capital requirements are designed to serve two purposes: first, to discourage the use of very risky business strategies in the banking sector (the more equity the shareholders stand to lose if the bank collapses, the less risk they will be prepared to take), and second, to increase the strength of a bank in the face of unexpected losses (the more equity there is to absorb losses, the more difficult it is for the bank to collapse). The first and second iterations of the Basel Agreements had a simple scheme for capital requirements. First they distinguished between two types of capital:

- Tier 1 capital, which consists of accounting equity created by common equity, preferred stock, minority stakes and valuation reserves.
- Tier 2 capital, or supplementary capital, made up of general provisions, hybrid instruments (with equity and debt features), subordinated debt and other reserves.

Tier 2 capital has bears little relation to book equity and does not contribute towards absorbing the losses of the accounting period and avoiding a bank's collapse. It is entered as "supplementary capital" because the rights of the instruments' owners are subordinate to the senior debt and deposits in the event of

5 SIVs = Structured Investment Vehicles.

6 Conduits are basically funds that are not obliged to consolidate their balances with the bank of origin.

the bank's becoming insolvent. In other words, the tier 2 capital supports the first aim of capital requirements (discouraging the taking of excessive risk), but not the second (increasing the strength of a bank in the face of unexpected losses and stress scenarios).

Under Basel II, the banks had to maintain an 8% minimum ratio of total capital (tier 1 + tier 2) over risk-weighted assets. At least half this capital (4%) had to be tier 1 capital. At least half of the tier 1 capital (2%) had to be made up of common equity. In other words, a bank could comply with a regulatory capital of 10%, considerably over the minimum, with the following instruments:

- Common equity: 2%
- Preferred stock: 1%
- Minority stakes: 1%
- Subordinated debt: 6%

Under Basel III, these proportions will be drastically altered. Table 2 shows the new structure of capital requirements.

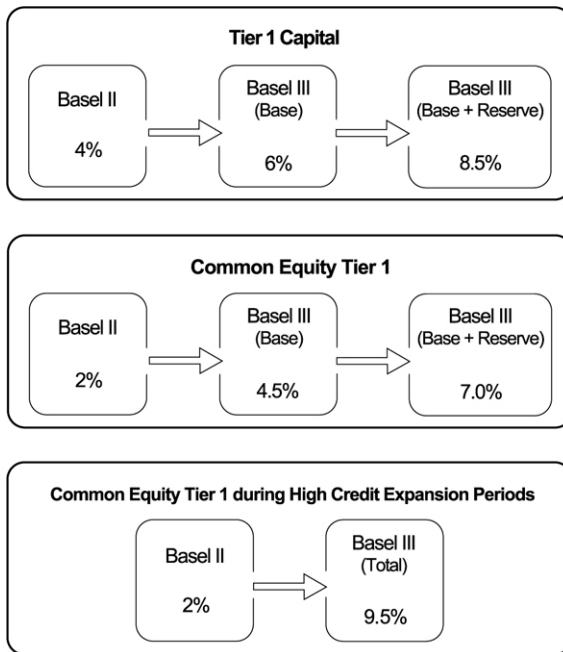
TABLE 2  
CAPITAL REQUIREMENTS UNDER BASEL III

	Common Equity Tier 1	Capital Tier 1	Capital Total
Minimum	4.5%	6.0%	8.0%
Conservation reserve	2.5%		
Minimum plus reserve	7.0%	8.5%	10.5%
Range of counter-cyclical reserve	0 - 2.5%		

SOURCE: BASEL COMMITTEE ON BANKING SUPERVISION.

DIAGRAM 2

## BASEL II COMPARED WITH BASEL III



SOURCE: BASEL COMMITTEE ON BANKING SUPERVISION.

Diagram 2 compares these figures with the requirements of Basel II. Although the base requirement of total capital remains constant at 8% of the risk-weighted assets (RWA), in practice every important bank must hold an additional reserve of 2.5%. Otherwise it will be subject to increased regulatory supervision and its ability to pay dividends to its shareholders, carry out buybacks of shares and grant bonds to its staff will be limited. It is also important to note the dramatic change in capital composition. Of this total ratio of 10.5%, most of it (8.5%) must be made up of tier 1 capital. Of tier 1 capital, most of it (7%) must be made up of common equity. Finally, in periods of high credit expansion, the regulators can require the banks to hold 2.5% of their RWA in additional capital, and this reserve must also be made up of common equity. In other words, the proportion of common equity to RWA

that a bank must hold in times of strong credit expansion will increase from 2%, as it was under Basel I and Basel II during the financial crisis, to 9.5% under Basel III.

In addition to all the above, the Basel Committee is working on a rule that will penalise those banks that are large enough to create systemic problems if they collapse. The proposal for this rule is that banks that figure on a list of systemic financial institutions would be required to keep additional tier 1 capital of between 1% and 2.5%, consisting of common equity. In this way, the larger banks would have to keep common equity equivalent to 9.5% of their RWA in normal times and up to 12% of their RWA in times of strong credit expansion.

In addition to the changes in capital requirements, the banks cannot exceed a leverage ratio (tier 1 capital to total assets without risk-weighting) of 3%, in order to limit the potential abuse of regulations. Basel III puts a very strong emphasis on the importance of common equity within the banks' financial profile.

### **Liquidity requirements**

The last important micro-prudential innovation from Basel III for our analysis is the introduction of liquidity requirements. There are two separate but complementary liquidity requirements: the first, the Liquidity Coverage Ratio (LCR) requires banks to hold a sufficient quantity of high quality liquid assets to enable them to survive acute stress scenarios (loss of deposits, reductions in their credit rating, paralysing of wholesale funding markets, increase in loan haircuts, etc.) for one month. The second liquidity requirement, the Net Stable Funding Ratio (NSFR) requires a minimum level of liquidity proportional to the difference in term between the institution's assets and liabilities.

### **Additional measures**

Although the above advances are important, there is still work to be done. The BCBS is working on revising the scheme for measuring market risks (including the difference between the trading book and the banking book), the monitoring of the capital requirements for operational risks, and the inclusion of concentration risks. Finally, other areas of work include setting up coherent resolution mechanisms for institutions with problems, both local institutions and those that operate across frontiers, and defining the regulatory framework for financial institutions that operated without supervision prior to the crisis.

### III. Macro/financial effects of the new regulations

As we pointed out in the previous section, Basel III differs from its previous iterations in that it seeks to increase significantly the capitalisation of the industry and set minimum liquidity levels. Furthermore, under Basel II a considerable proportion of the regulatory capital held by the banks was made up of subordinated debt and hybrid instruments, while Basel III places strong emphasis on the importance of keeping capital in the form of common equity and retained earnings. In other words, the new banking regulations mean a steep increase in both the level and the quality of the capital.

#### How do these capital and liquidity requirements affect banking efficiency?

If the classic theorem of Modigliani and Miller (1958) were to hold good, the capital requirements would have no effect at all on either the value or the practices of a bank. The theorem does not hold because two of its assumptions are violated: first, the payment of interest on the debt is deducted from taxes; second, and more importantly, banking debt enjoys an extremely large state subsidy. Deposit insurance schemes (whether implicit or explicit) drastically reduce the market interest rates at which banks are able to borrow: it is easily observable that the sensitivity of banks' financing rates to their debt level is far lower than that of other enterprises in an economy. Although the rate of return on equity (ROE) demanded by investors decreases as financial leverage falls, the effects do not offset one another: the more capital a bank holds, the greater the cost of financing its operations.

In the same way, liquidity requirements – especially the NSFR – reduce the term difference that a bank can maintain between its assets and liabilities. Taking short-term liabilities and using them to finance the purchase of long-term assets, which is known in literature as *maturity transformation*, is more profitable than the more cautious policy of using liabilities and assets with similar term structures.

#### The state of the banking system

The Basel Committee has drawn up a quantitative impact study (QIS) to estimate how pressed the banks are by Basel III requirements. The study was produced together with the local supervisory agencies and banks of 23 member countries, with a total sample of 263 banks which were separated into two groups: those

that have a tier 1 capital in excess of € 3 thousand million, are well-diversified and active internationally (group 1), and those that are smaller, more concentrated and/or local (group 2).

Table 3 summarises the results of this study, comparing how much capital each group of banks had in December 2009 under the more permissive criteria of Basel II, the stricter ones of Basel III, and the deficit according to each standard of measurement. According to this study, the median of the smaller banks (group 2) exceeds the capital requirements. However, on average, the larger banks (group 1) need to collect 2 additional percentage points of Tier 1 Capital, of which the greater part (1.3 points) must be made up of common equity. Graph 3 shows the distribution of the most important results of the study.

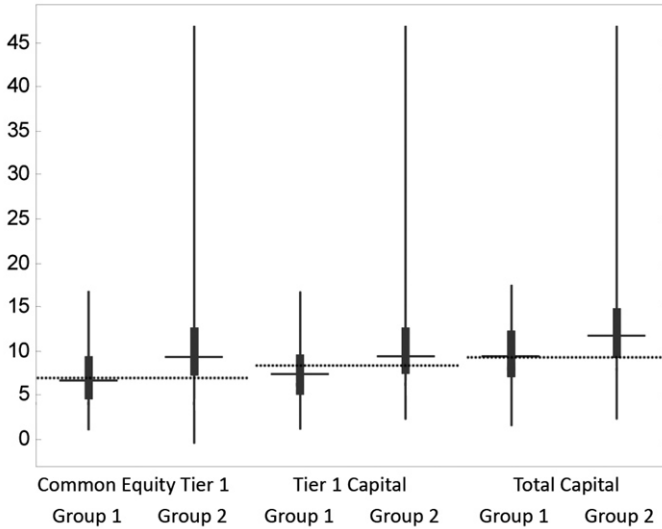
**TABLE 3**  
**LEVELS OF CAPITAL AND LIQUIDITY FOR A BROAD SAMPLE OF BANKS**

	Basel II Criteria	Basel III Criteria	Difference	Basel III Minimum	Deficit
Tier 1 common equity ratio (Group 1)	11.1%	5.7%	—5.4%	7.0%	1.3%
Tier 1 common equity ratio (Group 2)	10.7%	7.8%	—2.9%	7.0%	0
Tier 1 capital ratio (Group 1)	10.5%	6.3%	—4.2%	8.5%	2.2%
Tier 1 capital ratio (Group 2)	9.8%	8.1%	—1.7%	8.5%	0.4%
Total capital ratio (Group 1)	14.0%	8.4%	—5.6%	10.5%	2.1%
Total capital ratio (Group 2)	12.8%	10.3%	—2.5%	10.5%	0.2%
Leverage ratio (Group 1)	—	2.8%	—	3.0%	0.2%
Leverage ratio (Group 2)	—	3.8%	—	3.0%	0
Liquidity coverage ratio (Group 1)	—	83%	—	100%	17%
Liquidity coverage ratio (Group 2)	—	98%	—	100%	2%
Net stable funding ratio (Group 1)	—	93%	—	100%	7%
Net stable funding ratio (Group 2)	—	103%	—	100%	0

SOURCE: BCBS (2010b).

GRAPH 3

## NEW CAPITAL RATIOS UNDER BASEL III (%)



SOURCE: RESULTS OF THE COMPREHENSIVE QUANTITATIVE IMPACT STUDY. BASEL COMMITTEE OF BANKING SUPERVISION (2010).

## NOTES:

- \* ANALYSIS OF THE CAPITALIZATION POSITION OF A SAMPLE OF 263 BANKS. 94 BANKS BELONG TO GROUP 1 (OVER EUR 3 THOUSAND MILLION OF CAPITAL AND ASSETS INTERNATIONALLY); THE REST CORRESPOND TO GROUP 2.
- \* DOTTED LINE SHOWS MINIMUM LEVEL PLUS RESERVES FOR EACH TYPE OF CAPITAL.
- \* SOLID HORIZONTAL LINE SHOWS THE MEDIAN FOR EACH GROUP AND CATEGORY.
- \* GROUP 1: LARGE BANKS; GROUP 2: SMALL BANKS.

If the exercise carried out by BCBS is projected to the year 2019, it will be seen that the banks must raise USD 130-140 million over the next few years. If one looks at Graph 3, it is possible to infer that the large banks today have considerable capital needs in order to reach the level required by Basel III, while the small banks, almost on average, are doing very well and need very little.

### Effects of capital requirements on credit interest rates

Estimating the decisions and measures that the banking sector will take in order to face up to Basel III is very complex: as the QIS suggests, banks are heterogeneous and the adjustments needed vary considerably. The 13 American banks that



formed part of the QIS all belong to group 1, while of the 68 German banks, 59 belong to group 2. The cost to enable the two groups to comply with Basel III is very different.

Given the difficulty of obtaining precise estimates, it is reasonable to use conservative assumptions. In this case, we can extrapolate the results of group 1 to try to estimate what effect Basel III will have on the banking system: it would increase the real level of regulatory capital by approximately 2%, all of which must be made up of tier 1 capital. In turn, we assume that the totality of the capital tier 1 corresponds to common equity.

The following studies provide estimates of the increase needed in the lending rates that a bank must charge given an increase in the ratio of tangible common equity over risk-weighted assets (TCE/RWA). The studies assume that the only adjustment mechanism used by banks to adapt to greater capital and liquidity requirements is that of increasing lending rates.

TABLE 4  
IMPACT OF THE RISE IN CAPITAL AND LIQUIDITY REQUIREMENTS ON LENDING RATES

	Increase in lending rate per extra 1% of capital (basis points)	Increase in lending rate considering an increase of 2% (QIS) (basis points)
BCBS (2010a)	13 †	51
MAG (2010)	16.7 † *	33.4 † *
Elliott (2009)	19	38
Kashyap, Stein and Hanson (2010)	4.5 †	9 †

† INCLUDES ONLY THE EFFECTS OF A RISE IN CAPITAL REQUIREMENTS, WITHOUT TAKING INTO ACCOUNT THE NEW LIQUIDITY REQUIREMENTS (NSFR AND LCR)  
\* RESULTS CORRESPOND TO THE END OF THE SIMULATION PERIOD, NOT TO A STEADY STATE.

In other words, an increase of 1 percentage point in the ratio of capital to risk-weighted assets would lead to a rise of 5 to 17 basis points in lending rates. Since more capital is needed, the industry is going to be slightly more expensive, the cost of loans rising as a result, *ceteris paribus*. The total effect of the regulation of capital and liquidity on interest rates under the above assumptions is around 30

to 50 basis points, according to the estimates of the BCBS. It is important to note that this figure represents something close to a top limit, because the assumptions are excessively conservative. Banks can make other adjustments (reduce costs, for example, by using more information technology). A separate study made by the OECD coincides with the figure of 50 basis points of higher credit costs. It is worth stressing that these studies do not consider the endogenous response of the central banks. If central banks consider that the economy would slow down too much given those increases, or that they might jeopardise their inflation goals, they will respond by reducing the monetary policy interest rate, which will also have the effect of pushing down the lending rate.

### Effects on the economy

The BIS carried out a detailed study, using 15 years of data for 6,660 banks from 13 different countries and a total of 13 macro-economic models, to estimate the effect on the product. The result of the study indicates that long-term output (in steady state) would fall by only 0.37% using the conservative assumptions illustrated earlier (see Table 5).

**TABLE 5**  
**IMPACT OF THE RISE IN CAPITAL ON THE LONG-TERM PRODUCT**

	Fall in long-term output using QIS figures (%)
U.S.A.: DSGE and VECM models, including banking capital	<b>0.20</b>
U.S.A.: DSGE models, not including banking capital	<b>0.40</b>
Euro Zone: DSGE models, including banking capital	<b>0.34</b>
Euro Zone: DSGE models, not including banking capital	<b>0.34</b>
Italy, United Kingdom: semi-structural models without banking capital	<b>0.45</b>
Average	<b>0.37</b>

SOURCE: BIS (2011).

A separate study that evaluates the transitory costs of the adjustment, made by the Macroeconomic Assessment Group, brings up similar results. The median of the results indicates that the maximum deviation of the product compared with its

trend, in the face of a 1 percentage point rise in the capital required, would be 0.19% and would occur 4 years after implementation (equivalent to a reduction of 0.04% in the annual growth rate of the GDP). The impact, without taking into account the liquidity requirements, and assuming that the necessary capital increase is 2 percentage points for all banks, would be a fall of 0.08% in growth.

The OECD study suggests a transitory fall in annual growth of between 0.05% and 0.15%, which is consistent with the previous figures.

It is worth stressing that these studies only include the cost in terms of growth. These costs have to be compared with the benefits of avoiding expensive financial crises or reducing their cost. An additional benefit, according to the BIS, is that having higher capital requirements and liquidity requirements makes the product less volatile.

By way of conclusion, the economic effects forecast for implementing Basel III are quite modest, in both the medium and long term. Furthermore, the studies referred to above do not include the following mitigating factors:

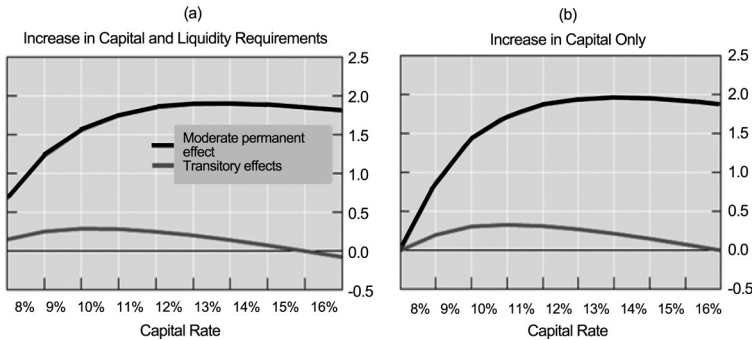
- (i) Part of the impact on lending rates can be mitigated through monetary policy.
- (ii) The space that the banks have for increasing lending rates is limited by competition from the non-banking financial sector.
- (iii) The banks have a series of adjustment variables in addition to the interest rate on their loans, meaning that the final effect on market interest rates may be substantially lower.

Unless another far-reaching crisis occurs during the next few years, the cost of complying with Basel III seem reasonable. Furthermore, these measures will be phased in gradually, from January 1, 2013 until January 1, 2019. This gradual introduction will help to calibrate the measures that have been adopted over time.

As Graph 4 shows, taking into account the negative effects of financial crises on output, and the fact that stricter and more effective regulation should decrease their frequency, Basel III should provide a net benefit in growth.

GRAPH 4

NET ECONOMIC BENEFITS EXPECTED IN THE LONG TERM FROM INCREASES IN CAPITAL AND LIQUIDITY



SOURCE: "AN ASSESSMENT OF THE LONG-TERM ECONOMIC IMPACT OF STRONGER CAPITAL AND LIQUIDITY REQUIREMENTS", BCBS, AUGUST 2010.

NOTE: VERTICAL AXIS: THE NET BENEFITS ARE MEASURED BY THE PERCENTAGE IMPACT ON THE RATE OF PRODUCT. THE CAPITAL RATE IS DEFINED AS TCE/RWA (TANGIBLE COMMON EQUITY TO RISK-WEIGHTED ASSETS). THE START POINT CORRESPONDS TO THE STATE OF BALANCE PRIOR TO THE REFORM, APPROXIMATED BY THE HISTORIC AVERAGES OF THE TOTAL CAPITAL RATE (7%) AND THE MEAN PROBABILITY OF BANKING CRISES. NET BENEFITS ARE MEASURED BY THE DIFFERENCE BETWEEN THE EXPECTED BENEFITS AND THE EXPECTED COSTS. EXPECTED BENEFITS ARE EQUAL TO THE REDUCTION IN THE PROBABILITY OF CRISES BY THE LOSSES OF THE CORRESPONDING PRODUCT. THE BLACK AND GREY LINES REFER TO ESTIMATIONS OTHER THAN NET BENEFITS, IF IT IS ASSUMED THAT THE EFFECTS OF THE CRISIS ON PRODUCTION ARE PERMANENT, BUT MODERATE (WHICH ALSO CORRESPONDS TO THE MEAN ESTIMATION OF ALL THE COMPARABLE STUDIES) OR ONLY TRANSITORY.

#### IV. Effects on the pension industry

##### First-Degree Effects

The direct effects of these reforms on the pension industry are limited. The main effect of the reforms is to create a banking system – and therefore a financial system – that is more solid and stable, which will considerably benefit those industries that have a long-term horizon.

The benefit of the reforms – less volatility, including a lower incidence of crises and their costing less when they do occur - should be greater than the costs, because, once up and running, the net effects of the reforms on growth are limited. This makes it possible to talk of the net benefit shown in Graph 4. In addition to increased stability, the reforms should produce upward pressure on bank lending rates, producing a greater supply of banking shares and bonds and a greater demand for liquid, high-quality assets.

## Second-Degree Effects

The second-degree effects on the financial markets depend on the financial and liquidity strategies decided upon by the banks.

In the first place, non-distribution of profits reduces the need to issue common equity. The pension industry will benefit from a financial system that will have to be more transparent. Since the banks have to place a large amount of share capital in the next few years, they are going to have to be much more open about their balances. When placing shares, they will have to say in their prospectuses how robust they are and what their share portfolio is like and explain what they have been doing with their money.

In the second place, complying with the liquidity requirements will probably produce more demand for high-quality bonds (especially sovereign and corporate bonds) and less demand for illiquid and lower-quality assets (securitised assets, credit for leveraged buyouts, high-yield bonds). And in the third place, fulfilling the term requirements for funding should generate longer-term bond issues and reduce the offer of short-term bank debt. All this should result in investment opportunities in the pension industry, given the fact that pensions, being long liabilities, are looking for long assets.

The most favourable benefit for the pension industry is the reduction in the probability of crises, since that will result in minimising the situations experienced in 2008-2009 when the financial crisis encouraged politicians to reverse the pension reforms and return to the old pay-as-you-go systems.

The remaining challenge is for each country, individually, to carry out its work of seeing how to implement the minimum requirements, and at what speed, from the point of view of supervising and regulating the financial system.

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# CHILEAN EXPERIENCE WITH THE 2008 PENSION REFORM: INTEGRATION BETWEEN THE DIFFERENT PILLARS OF THE PENSION SYSTEM

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The Pension Reform that took place in Chile between the years 2006 and 2008 has aroused justified interest at international level. It therefore seems appropriate to give a brief account of the process and essential contents of that Reform.

It has fallen to me to watch public policy decision-making processes in Chile for some time and probably few cases come anywhere near the pension reform as an example of good policy, in both the form or process and in the substance or content.

The aim of this article is twofold. On the one hand, it deals with the political process of the reform. On the other, it refers to the substance or content of that Reform, particularly with regard to the new integration or coordination between the different pillars of the pension system.

### **I. The process of a successful reform**

A comprehensive debate on the pension system in Chile was opened for the first time from the year 2006 onwards. The reform that resulted from that debate was included in the government program of former President of the Republic, Michelle Bachelet, though it must be said in honour of the truth that there were widely varying opinions within Bachelet's teams about what the emphasis of the reform ought to be.

A fundamental element that contributed to a more relevant and rational debate was the existence of previous studies that helped to provide the reform process with technical support. First there was the Social Protection Survey (EPS), conducted since the year 2002, which made it easier to infer and forecast the coverage that could reasonably be expected from the contributory pillar and, therefore, the residual needs of a solidarity pillar. In the second place, there

were studies from the former Superintendence of AFPs about reforms that might be possible and necessary, from the regulator's point of view. And in the third place, there was research carried out by multilateral bodies that had analysed the Chilean pension system.

Of great importance was the political option adopted by former President Bachelet at the end of her 2005 presidential campaign, which consisted in reaffirming the need for a reform, but referring, and therefore postponing, the definition of its specific contents to the results of the report of a specialised Presidential Advisory Commission (also known as the Marcel Commission), underlining the fact that the reform was seeking to strengthen the solidarity pillar, contribute towards fairer treatment in matters of gender and promote greater levels of competition within the AFP industry.

#### **Decalogue of a successful reform: 10 reasons for the success of the 2008 pension reform**

Any list of the reasons that contributed to the success of the pension reform process could be criticised as arbitrary or incomplete. I have, however, set myself the task of listing ten reasons which, to my mind, explain the result, even though I dare not attach a weighting to their relative importance. Let's see:

1. The management of expectations: It avoided the temptation to exacerbate the contents of specific proposals for change and take extreme positions, and therefore the specific contents were diverted into technical proposals on which there was consensus, these having been produced by a politically transverse study commission. Political economics led expectations mainly towards the viable and peaceable: the increase in the benefits of the solidarity pillar.
2. The reform expanded benefits. Unlike many other reforms that are attempted today in the world in matters of social security, this was a reform designed to expand benefits. The diagnosis in Chile was that it was essential to expand certain benefits of the solidarity pillar component and, given the moment when this reform occurred, the initial deficit of the transition had already decreased, allowing some fiscal leeway which made it possible to increase the benefits of the solidarity pillar. As a result, this reform was a social winner, which obviously helped in its legislative processing and in gaining the support of public opinion.

3. Pool of previous studies. There was a pool of previous studies which was essential for enabling evidence and technical debate to win out over prejudice or ideology.
4. The composition of the Advisory Commission. The composition of the Commission was technical for preference, with a political cross-section and without specific representation of unions or sectors, which was very important for the flexibility of the debate and the ability shown to reach certain agreements. Commissions made up of people who represent specific interests tend to be more rigid.
5. The commission's method of working. The Commission's method of working was characterised by the following qualities:
  - a. First, emphasis was placed on public hearings and transparency. In the Commission we spent almost a month and a half listening to all the people who wished to give their opinion, and the only requirement was that the opinions be delivered in writing, in an abstract, as they would be made available to the public on the Commission's website.
  - b. Second, a centripetal logic was given to the work. Short deadlines were conducive to the building of agreements. We had a short deadline, of about 100 days, in which to deliver the final report, so there was no time to discuss too much because of the pressure to reach an agreement. Furthermore, the fear that minority votes might debilitate the report contributed to the search for consensus.
  - c. Third, the leadership of Mario Marcel, Chairman of the Commission, was crucial. Mario Marcel was dedicated to this full-time, and his leadership was without prejudices or impositions, characterised by his flexibility and openness.
6. The reliability of the technical support. The technical support of the Superintendence of Pensions and the Ministry of Finance was always available to the Commission. The technical teams that worked on producing the report were the same ones that later transferred to the Government to prepare the wording of the Bill. This meant that there was continuity between the preparation of the proposals and their wording in the form of a Bill. This helped considerably towards an efficient transition, from the work of proposal to the wording adjusted to legislative technique.

7. The Government's decision to place the wording of the reform in the hands of the Ministry of Finance. This clearly reduced conflicts and defined leadership roles and responsibilities within the Executive in the phase following the delivery of the Commission's report.
8. The Basic Solidarity Pension (PBS). This was the "star" element and benefit of the reform, with wide support from all sectors (nobody wanted to pay the cost of holding up its application). Here the government's decision not to "unpack" the reform was of key importance, forcing its processing to be carried through completely and rapidly in order to fulfil the political commitment to grant the PBS during the winter of 2008.
9. Necessary negotiations and leadership. There was a presidential impetus in the project that was highly valued by public opinion and this left little room for obstruction or delay. All the same, the process was not entirely free of debates that required negotiation and leadership, such as:
  - (i) The old idea that the contribution must be tri-partite. Economists say that the question of whether the contribution is paid by the employer or the worker is irrelevant, because there will always be a net wage and a gross wage and it doesn't matter who appears nominally to be paying the difference. But what is true in economics is not true in politics, and it was necessary to produce a contribution of some sort from the employer, which did not exist in Chile. That was done by making the employer responsible for paying the premium of the Disability and Survivorship Insurance as part of the negotiations and agreements in Congress.
  - (ii) The debate about the creation of a State AFP was shifted into another bill, which has not so far been presented to Congress.
10. Luck. The reform was dispatched by Congress in January 2008, only months before the Lehman Brothers crash. Let us remember that Fund A, the most risky fund in the Chilean multi-fund structure, fell almost 43% in the year 2008. Furthermore, the reform did not question the principles of individual funding. On the contrary, together with creating a robust first pillar, it reinforced the contributory pillar by introducing progressive obligation to contribute for the self-employed. How much more difficult the reform process would have been if the political debate had coincided with the explosion of the economic crisis!

## II. A new balance between the first and second pillar of the pension system

What were the central elements of the pension reform from the point of view of the new dove-tailing of the pension system's first and second pillar? Given below is a review of the main aspects of the pension reform in this sense.

### 1. Creation of the new solidarity pillar

The background information and studies indicated that about 50% of members (those who have contributed at some point in an AFP and may therefore have quite large social security gaps), would not manage to get a minimum pension. In addition, according to the studies, the density of contributions among workers born between 1965 and 1980 was relatively low: 47% for men and 33% for women.

The new solidarity pillar created by the reform came to take the place of the program of Welfare or Assistance Pensions (PASIS) and that of Minimum Pensions Guaranteed by the State, with low amounts and coverage. This new pillar provides a Basic Solidarity Pension (PBS) for people without other pensions who belong to the poorest 60% of the population (CLP 75,840 = USD 165).

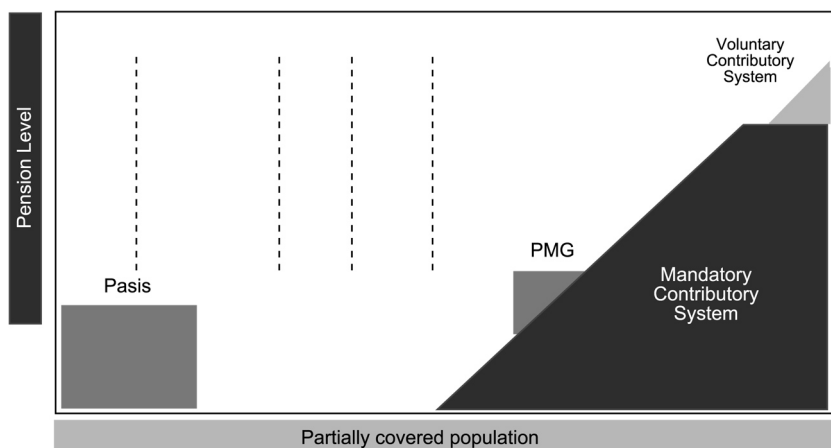
Also introduced was the Solidarity Pension Contribution (APS) for those whose self-financed pensions are low and who belong to the poorest 60% of the population. The idea of this contribution is to increase that pension so that the savings generated throughout life have a positive effect on the pension received and the effort of saving is never "swept aside" by an imposed PBS.

Graph N° 1 shows the graphic scheme of the coverage position prior to the pension reform. On the one hand we had the Welfare Pensions, available only for a segment of the poorest population, a segment with no coverage at all, and a Minimum Guaranteed Pension (PMG) which had very small coverage. The guarantee consisted in the State's guaranteeing the amount of the minimum pension to anyone who had paid contributions for 20 years. What happens is that these are contribution densities that are very difficult to achieve, and almost by definition, anyone who has managed to pay contributions for 20 years will have reached the amount of the minimum pension, meaning that the effect of this guarantee was very low.

On the other hand, we had a robust mandatory contributory system, which was the core of the pension system, and a voluntary contributory system which, although it had been growing, had a defect in its structure in the sense that the benefits or incentives from the State were directed fundamentally to the population with highest incomes, meaning that they were regressive.

GRAPH N° 1

SITUATION PRIOR TO THE REFORM

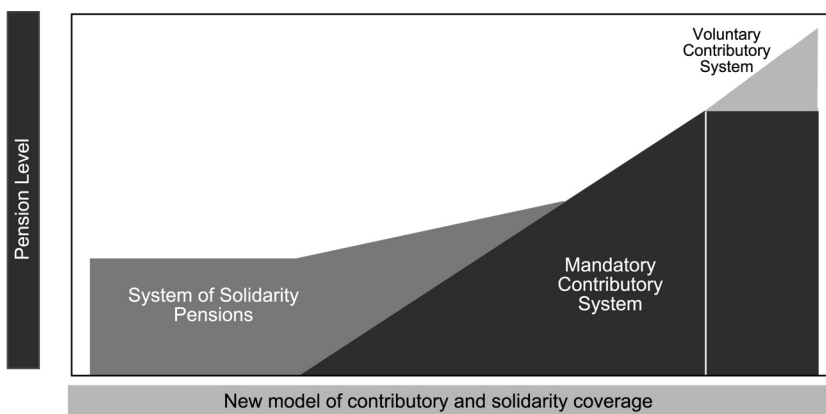


SOURCE: MARCEL COMMISSION FOR PENSION REFORM.

With the Reform (see Graph N° 2), we have a System of Solidarity Pensions, which starts with a zone without a slope. Then the upward slope begins, which assumes that people add the Solidarity Pension Contribution provided by the State to the savings generated by themselves (from the mandatory contributory system), meaning that the pension of the person who pays contributions will always be greater than that of the person receiving only the PBS. Then we have a voluntary contributory system, which is more robust in that it generates incentives to encourage low-income workers to pay additional contributions to increase the rate of pension saving.

GRAPH N° 2

SITUATION FOLLOWING THE REFORM: MODEL PROPOSED



SOURCE: MARCEL COMMISSION FOR PENSION REFORM.

## 2. Increase in coverage of the Mandatory Pillar

In addition, a series of elements were introduced to strengthen the mandatory savings pillar:

- (i) *Subsidy on the hiring and contribution of young workers with low incomes.*  
This subsidy consists of the State's making a contribution towards financing the first 24 monthly contributions of workers between the ages of 18 and 35 whose wages are less than 1.5 minimum wages; the additional subsidised contribution goes into those workers' funding accounts. The aim of the subsidy is, of course, to encourage these segments to join the labour market, but also to make the most of the greater rate of accumulation to be expected from early contributions.
- (ii) *Increased supervision of contribution payments.* If the AFP has not been notified of the termination of a worker's contractual relationship, his/her contribution is taken to be declared and not paid. Electronic payment is also encouraged, by giving an extra day in which to pay (the 13th of each month).

(iii) *Mandatory contribution for self-employed workers.* This is the main measure for increasing coverage and has a transition period which ends in the year 2015 (with a default option that applies between 2012 and 2014). This applies to particular categories of contributors, and the payment is made basically through the tax declaration.

This third measure was brought in to correct a case of discrimination as compared with employed workers. That discrimination was based on two explanations: first, a historic one: initially social security was financed by employers, and second, a practical one: there was a difficulty in collecting the contributions of the self-employed. But when technology makes it possible to advance towards more effective ways of collecting contributions from self-employed workers, this argument no longer makes sense, and the distinction between the obligation for employed workers and the mere invitation for self-employed workers becomes discriminatory and without rational justification.

Furthermore, if the first solidarity pillar grows stronger, the cost of not motivating self-employed workers may become much higher for the government in the future. For that reason, the time had come in this reform to take self-employed workers' obligation to become contributors seriously, not only for reasons of fairness, but also to ensure the fiscal sustainability of the solidarity pillar in the long term.

### *Why do self-employed workers not pay contributions?*

The evidence shows that the main reasons why self-employed workers do not pay contributions are as follows: first, the high transaction costs involved: these formalities are complicated and have to be done every month; second, the savings' lack of liquidity; third, there is a problem of inter-temporal inconsistency that leads to pension decisions being put off into the future ("*I'll begin when I'm earning more*", "*I'll work all my life*"); and fourth, there is a high level of ignorance about the system.

The evidence showed that without a pension reform, only 3.9% of self-employed workers had pension coverage (compared with the 70% coverage of employees)<sup>2</sup>, and that the contribution density of the self-employed was hardly 0.3% (compared with 52% contribution density among employees)<sup>3</sup>.

2 Source: Superintendence of AFPs, Chile.

3 Source: Social Protection Survey (EPS) 2002-2004, Chile.



### Gradual inclusion of self-employed workers

Figure N° 1 shows the calendar of transition as regards self-employed workers' obligation to pay contributions. There are two type of self-employed workers, those who obtain income on capital, who are invited to contribute (it will not be compulsory for them to do so), and those who receive income from working, for whom it will be fully compulsory in the long term.

FIGURE N° 1  
COMPULSORY CONTRIBUTION FOR SELF-EMPLOYED WORKERS: TRANSITION  
CALENDAR

Self-employed workers	Who they are	Benefit	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Voluntary Enrolment	Receive income from capital (1)	Pension	Voluntary enrolment in the social security system										
		Health	Voluntary enrolment in the social security system										
		IAOD(3)	Voluntary enrolment in the social security system										
Later Compulsory Enrolment	Receive income from work (2)	Pension	Voluntary enrolment in the social security system	Choice of obligation				Full obligation					
		IAOD(3)	Voluntary enrolment in the social security system	Choice of obligation				Full obligation					
		Health	Voluntary enrolment in the social security system	Choice of obligation									Full obligation

(1) INDIVIDUAL ENTREPRENEURS, HAULAGE WORKERS, TAXI DRIVERS, MINERS, FARMERS, ETC.  
(2) PEOPLE WHO ISSUE RECEIPTS: LAWYERS, JOURNALISTS, HAIRDRESSERS, ADVERTISERS, ARTISTS, PLUMBERS, NOTARIES, ETC.  
(3) INDUSTRIAL ACCIDENTS AND OCCUPATIONAL DISEASES.  
SOURCE: PRODUCED BY THE AUTHOR.

### Incentives to encourage self-employed workers to enrol

A series of incentives were also introduced during the transition phase, together with these obligations, so that self-employed workers who were invited voluntarily at the beginning (remember that the transition ends in 2015) realise that joining the system is not just a matter of a reduction in net income, but also brings a whole series of benefits as compensation, such as:

- a. Making the rights and obligations of self-employed workers the same as those of employees.
- b. Pensions and health coverage and protection against industrial risks and occupational diseases.
- c. Access to state credit for voluntary pension saving.
- d. Right to family allowances (as from 2012).
- e. Right to join a “Caja de Compensación” (a fund paying family allowances and other benefits) (as from 2012).
- f. Combination of public benefits with pension contributions (development, children’s education, housing).

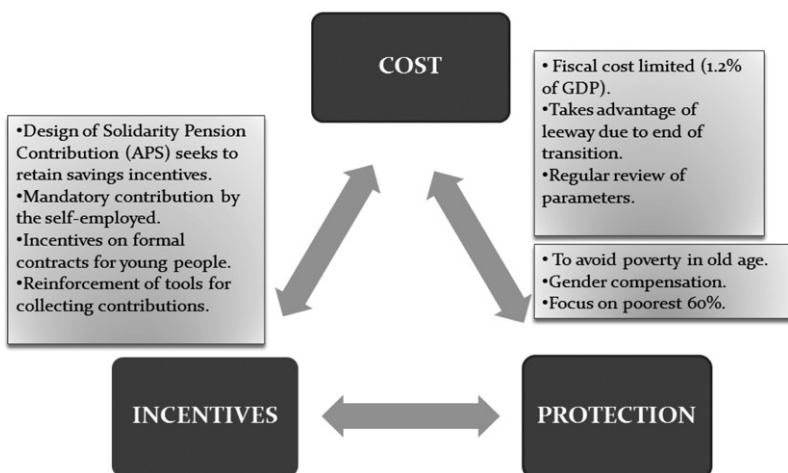
### **Balances in the design of the Solidarity Pillar**

Each time a reform is introduced which alters the perception of benefits between the contributory and non-contributory function, one has to look at the trade-off that exists between the fiscal cost of the reform, the levels of protection and the incentives to contribute (see Figure N° 2). The higher the fiscal cost, the higher the levels of protection, but this inevitably has a detrimental effect on incentives to contribute.

Consequently, the more one reinforces protection, the more necessary future fiscal expenditure becomes in terms of that same protection, because the effort of individual saving is being discouraged. So, if the desired result is not just social sustainability over time but also fiscal sustainability, then it is necessary to accompany the reform processes of expanding non-contributory benefits with equally powerful trade-off incentives. That is what this reform attempted to do. These are still early days for evaluating its result, but at least there is a design for the Solidarity Pension Contribution (APS) which is added to the individual savings, so that the more the person has saved individually, the higher the pension will always be. Mandatory contribution by the self-employed, incentives to hire young workers and reinforcement of tools for collecting contributions and avoiding evasion constitute compensatory elements on the incentives side, so that there will not be an undesirable effect in the form of an increase in social protection working to the detriment of individual saving.

FIGURE Nº 2

BALANCES IN THE DESIGN OF THE SOLIDARITY PILLAR



SOURCE: PRODUCED BY THE AUTHOR.

The cost of this reform is feasible, particularly in the light of two elements. First, the transition: Chile is already paying significantly less than it was having to pay to contributors in the old system. The reform meant maintaining the payment obligation of those who were formerly enrolled in the old system, but channelling new contributions into the new system. This gap meant a considerable fiscal cost but, as time moves on, that cost becomes less, producing fiscal leeway. The fiscal cost of pensions for the Armed Forces, which remained in the pay-as-you-go system with very generous benefits, is today even greater for the Chilean State than the cost of the Solidarity Pillar in this phase.

### 3. A new deal for women

The reform focussed specially on improving the pension position of women. Women's pensions, on average, were equivalent to less than 70% of men's. This is explained by the fact that:

- (i) Women have lower contribution densities than men: 44% versus 60% during their working lives.

- (ii) Women have a low share in the labour market (43% share of the work force).
- (iii) Women have a higher rate of unemployment (8.9% of women versus 6.3% of men).
- (iv) There is a considerable wage gap between women and men.
- (v) There is a difference in the division of productive and domestic work.
- (vi) Women have an earlier retiring age (60 years versus 65 for men).
- (vii) Women have greater life expectancy than men.

All the factors mentioned above result in a very much lower replacement rate than that of men. The Reform sought to offset this by a variety of mechanisms to produce greater gender fairness:

- (i) Access to the System of Solidarity Pensions, which eliminates the previous requirements of having 240 months of contribution in order to qualify for state benefits. Women are the main beneficiaries of the PBS and the reinforcement of the solidarity pillar.
- (ii) State grant for women for each live birth. This grant is equivalent to a contribution on a minimum wage for 18 months, accrues at the moment of birth and produces a return equivalent to the yield of Fund C (intermediate). If a woman, for example, were to contribute on the minimum wage and have two children, the existence of this grant would mean a 16% increase in pension.
- (iii) Separate bidding for the Disability and Survivorship Insurance (SIS). If a woman pays the same premium for the SIS as a man, she is actually subsidising him. In view of all that has been mentioned above, it is particularly unacceptable that the woman should have to subsidise the man as well, in the sense that her expected claim rate is lower than his, but she has to pay a common rate. In consequence, the Reform stated that bidding for the male and female populations should nominally be separate, and that the rate charged should be that corresponding to the claim rate for men. Since the SIS is now paid by the employer, the difference between the real claim rate of women and that of men will be paid into the woman's

individual funding account, generating a kind of compensation for her. It is hoped that this will have an effect in terms of higher pension (between 2.5% and 4.5% more).

- (iv) Equal SIS coverage until the age of 65.
- (v) Right to a survivorship pension for a male spouse who is not disabled and the father of children born in a non-matrimonial relationship.
- (vi) Compensation in case of divorce or annulment of a marriage. The judge can award up to 50% of the pension savings to compensate the spouse who has suffered most harm.
- (vii) Women may enrol voluntarily and pay and/or receive contributions even when they have no income (the husband could contribute for the wife, if he wished to do so). In addition, such women are now covered by the SIS.

### III. Reinforcement and fairness in the third pillar

The third pillar, that of voluntary savings, was drastically reformed in the year 2002. That year competition was introduced, meaning that the AFPs were not the only ones allowed to offer Voluntary Pension Savings (APV), but also mutual funds, insurance companies and banks. Permission was also given to charge for managing these funds, which produced the incentive required for competition and a considerable upturn in the Chilean APV market.

What was the problem? The incentive was associated with a tax benefit on income tax, which reduced its coverage and made it regressive. In Chile at least, those who pay income tax are people in the band that corresponds probably to the 15% of the population with highest incomes. So, who had an incentive and who benefited from the tax allowance? Basically the quintile with the highest incomes. From the point of view of targeting public expenditure, this did not seem reasonable, and there was no sense in linking an incentive to the tax issue. For this reason, the reform set out a series of measures:

- (i) Collective Voluntary Pension Savings Plans (APVC). An attempt has been made to imitate or simulate schemes such as those that exist in the United States, which consist of contributions shared between the employer and the worker, with a vesting or continuance requirement (meaning that

the worker has to stay in the company in order to receive the employer's contribution) and a minimum coverage requirement within the company, to avoid concentration on the highest wages.

- (ii) Incentives for workers with average incomes. This consists of a state grant equivalent to 15% of the annual savings, with a cap of 6 UTM (approximately USD 500). This grant is paid into the special individual account, in the same institution where the worker deposits his/her savings. If the worker withdraws funds before retirement, 15% is withheld in favour of the state.

With regard to APVC, the regulations were modified in April 2011 in the light of evidence that showed that the initial regulations, which were too demanding, had not allowed this savings mechanism to flourish. The changes are related with:

- (i) Reducing the vesting period, to 24 movable months for each contribution (formerly we had a longer time requirement for the employer's contribution to be finally acquired by the worker). Here the aim is a mechanism by which each contribution from the employer will be paid finally into the worker's assets 24 months after that contribution is made, provided the worker remains in the company.
- (ii) Reducing the coverage requirement, with the aim of putting new life into this market, so now 100 people in the company or 15% of the workforce (whichever is less) are sufficient, rather than 300 people or 30% of the workforce (whichever is less), as required before.
- (iii) Authorising a differentiated contribution from the employer depending on the worker's length of service in the company.

These measures seek to make APVC more dynamic. It is a good idea but one that has had a very slight impact in the past two years, despite the new legislation. This may be due in part to the economic crisis and also in part to the fact that, for the employer, the incentives to contribute on the worker's behalf are still apparently insufficient. The worker on the other hand prefers to have a wage increase rather than contributions for a future pension. For that reason, unless the incentives are very strong – which does not seem to have been achieved altogether by the reform – it is not possible to expect a very large-scale development of collective pension saving among groups of workers who far prefer present income.



# COMMENTS

## JOAQUÍN GERÓNIMO <sup>1</sup>

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I must congratulate our friend Alejandro Ferreiro for his excellent presentation and the clarity of his statements about Chile's experience with the 2008 pension reform and the integration of the different pillars of its pension system. We take it as a foregone conclusion that this experience must serve as a point of international reference for any pension reforms that occur in the region. It confirms to us that one of the criteria that should characterise pension systems is their dynamic nature, in the sense that they should constantly be in a process of evaluation and improvement.

In the case of the Dominican Republic, this question is fortunately set out in the legal framework of the system itself. In fact, Law 87-01, which applies to matters of social security, states that the Dominican State, through the National Social Security Council (CNSS) is the final guarantor for ensuring that the system operates properly, responsible for its development, evaluation and periodic readjustments, and for adopting all necessary provisions and actions to ensure complete fulfilment of its social goals. As it happens, the follow-up of this legal mandate took place in the month of February this year at the first social security forum, which constitutes a proactive move to create the appropriate scenario for evaluating the achievements of our system and identifying the challenges in its on-going development.

Linking our own case with Chile's experience, we see with great satisfaction that the Dominican Pension System, which is one of the most recent reforms, included the best experiences known up to the year 2001 in its legal framework. So, many of the topics dealt with in the reform to the Chilean system had already been included in our legal framework, though provisionally in some cases. At the same time we see that there are also numerous coincidences between the Chilean experience in its recent pension reform in 2008 and the actions that we are undertaking, on the basis of the evaluation discussions that have recently begun in our country.

In the first place, there is the matter of increasing coverage, which implies starting the Subsidised Scheme, equivalent to the Solidarity Pillar in the Chilean reform, and redesigning the Subsidised Contributory Scheme, which deals with the treatment of self-employed workers. In our case, the need to increase coverage has been affirmed in order to fulfil the system's principle of universality. The aim, through this initiative, is to concentrate more attention on the most vulnerable sectors of the population, in such a way that this increase in coverage produces a reduction in the levels of poverty and social inequality prevailing in our society.

As regards the beginning of the Subsidised Scheme, our solidarity pillar, we have to say that so far the preliminary studies to support that scheme have not been carried out, so the Superintendence of Pensions has recently commissioned a national consultancy to enable a quantification to be made of the fiscal cost implied by its implementation, as also the possible sources of funding for it, on the basis of those already identified in Law 87-01 itself, which controls the whole system.

With regard to the Solidarity Pension Contribution (APS) in the Chilean reform, there is also a fortunate coincidence with our legal framework, which included, on a provisional basis, the creation of the Social Solidarity Fund (FSS). This Fund is designed to benefit members with low incomes, over 65 years of age, who have paid contributions for at least 300 months in any of the pension systems currently in force, and whose personal accounts contain too little to cover the amount of the minimum pension. In such cases the FSS will contribute the sum needed to make up that pension.

Bearing in mind that one of the proposals that came out of the First Social Security Forum was to suggest reducing the requirements in terms of age and number of contributions needed to qualify for the FSS, it has become necessary to assess its actuarial balance and financial sustainability in the long term. It is clear that at the same time as we are carrying out these studies, we must also take all the necessary steps, at an early stage, to increase the accumulation levels of the FSS.

In the same way, we can see that it would be interesting to evaluate the possibility of regulating the complementary contribution from the FSS, so that it encourages members to maximise their self-funded pension, as envisaged by the Chilean reform in the design of the APS.

As far as the Subsidised Contributory Scheme is concerned, this was designed to protect professionals, independent technical experts and self-employed workers, with average incomes equal to or greater than a minimum monthly wage, but the implementation of this area has turned out to be very complex. The conceptual framework of the Scheme therefore needs to be redesigned, so that putting it into effect becomes viable and it can provide coverage for that segment of the population which today represents almost 44% of the working population. The new approach suggested by the Chilean reform for treating independent workers as part of the Mandatory Pillar is worth special attention in this sense.

As regards the yield of the pension funds' investments, - though this was not a subject touched on in Ferreiro's lecture, but knowing that it was tackled in the Chilean pension reform and is particularly important for us, - it must be said that, since trading began on the stock market in the Dominican Republic with the first issues from financial intermediation institutions and non-financial companies, the pension funds have acted as its main driving force, acquiring altogether over 75% of the issues that constitute an investment alternative for the pension funds.

However, there is obviously great lack of symmetry in the growth rate of these two markets, which means that an insufficient quantity of financial instruments is being issued to supply the continuous, growing demand of the pension funds. This in turn causes pension fund investments to be redirected towards the money market, acquiring very short-term instruments at the lower interest rates.

Despite the above, progress has been made in diversifying investments, compared with the beginning of the system in 2003, by subsequently allowing investment in securities issued by the Central Bank and the Treasury, as also the recent authorisation to invest in securities issued by multilateral bodies to fund projects in the Dominican Republic.

On a different matter, we know that in the Chilean case the individually-funded system coexists alongside the previous pay-as-you-go system, the latter being in process of gradual extinction. This was perhaps the reason why the 2008 reform specified the extension of the functions of regulation and supervision to the current Superintendence of Pensions. In our legislation this was established from the beginning. It is only up to now that we have seen the pressing need

for the Superintendence of Pensions (SIPEN) to implement the regulation and supervision of the whole Dominican Pension System.

Our system is made more complex by the coexistence of special terms for certain sectors of the population that enjoy privileged social protection. This creates resistance among certain State bodies to submit to regulation, and special plans are being retained that include benefits and services of high potential cost for public finances.

Currently the SIPEN, fulfilling the Law's mandate, is carrying out actions to approach those Pension Funds and "Cajas" that operate outside the regulated system, so that they send in the relevant information to allow them to be brought into line within the system as a whole.

Finally, by way of conclusion, we must congratulate Chile and admire its leadership in implementing considerable improvements in its pension system, increasing coverage and significantly strengthening its first pillar (or solidarity pillar) to benefit the segments of the population with lowest incomes. This leadership means that the Chilean model continues to be an international point of reference for the implementation of best practices in matters of pension system regulation and supervision.

For our part, taking this rich experience into consideration, plus the conclusions and recommendations of our first Social Security Forum, we can say that the Dominican Pension System is currently devoting itself to a system of adjustment, with the aim of increasing significantly the coverage, quality and timeliness of its services; reducing costs for members and expanding the investment alternatives of the pension funds, all of which will result in more benefit for the system as a whole.

Our pension system is still very young, but this review and adjustment process will enable its continuity to be reinforced, with eyes fixed on the next 10 to 20 years, when the pension funds will come to represent between 20% and 40% of the Gross Domestic Product and the granting of old-age pensions will take a predominant place in the system of social insurance and provision in the Dominican Republic.

Thank you very much.





# PART I

## EXPERIENCE GAINED IN PENSION FUND INVESTMENT ISSUES DURING THE FINANCIAL CRISIS

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RODRIGO ACUÑA. Performance of the pension funds in individually-funded programs.

EDUARDO WALKER. Investment and information regulations.

LUIS FERNANDO ALARCÓN. Pension funds and infrastructure development.

DIEGO ICAZA. Reforms needed in investment regulations in the light of the experiences left by the financial crisis.

ROSS JONES. Pension Supervisors' responses to the financial crisis.



# PERFORMANCE OF THE PENSION FUNDS IN INDIVIDUALLY-FUNDED PROGRAMS

RODRIGO ACUÑA <sup>1</sup> <sup>2</sup>

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- 2 *This article was prepared by Rodrigo Acuña and given at the 2011 FIAP International Seminar by Manuel Tabilo, Research Manager of the International Federation of Pension Fund Administrators (FIAP).*



## I. Introduction

The international financial crisis experienced by the world during the past few years had a negative effect on the yield and risk results of the pension funds, causing certain criticisms to be levelled at the individually-funded systems and the administrators. However, by the end of 2010 the real yields of the pension funds had recovered, following the negative financial cycle, and volatility had fallen.

Most of the individually-funded pension systems will emerge stronger as a result of overcoming the crisis. In some countries, however, there has been backtracking or reversal of the reforms that gave rise to systems of this type. This is a cause for concern because of the damage that will be suffered by workers and economies in the medium and long term. Some authorities have included the administrators' performance in the investment of the pension funds among their reasons for decreeing such backtracking or reversal, and specifically the yield results obtained during the crisis. In fact the evidence suggests that there were other reasons behind these measures, mainly concerned with problems of debt and deficit in the government budget.

This does not mean that there is no room for improving the performance of pension fund investment. In fact, it is of the utmost importance that the authorities and the administrators themselves evaluate and carry out the adjustments needed in the regulatory and institutional framework of the individually-funded systems, to enable them to be run more effectively and so be better equipped to face the new economic and financial crises still to come. This is in order both to maximise the results that members obtain on the investment of the pension resources in the long term, and so optimise the pensions received, and also to make progress in explaining those results more clearly to the members.

In this context, the main aim of the present article is to present the yield results of the pension funds in different countries and comment on some essential aspects relating to the administrators' performance in investing pension resources in the individually- funded programs.

This article is arranged as follows: first we show some real yield results obtained by the pension funds and how much these have recovered from the effects of the crisis. Some general figures are also given about investment structure, by type of instrument and issuer.

Secondly, we mention different objectives that may be involved in measuring the performance of the pension funds and the existing restrictions and conditions for defining the corresponding evaluation indexes and publicising the results among

the members. More detail is given in the case of two of these objectives, namely that of evaluating the relative performance of the administrators and that of bringing the management of the investments into line with the long-term aims of the pension system.

The present article also presents the main conclusions, which seek to contribute towards the definition of public policies in matters of pension fund investment.

## II. Real yield of the pension funds and composition of the investments

According to the data prepared by FIAP on the basis of figures provided by the supervisory institutions of different countries included in the analysis, it is clear that the real yield of the pension funds recovered significantly during the years 2009 and 2010 after the severe slump in the prices of financial instruments experienced during the previous year as a consequence of the financial crisis.

The real yields of the pension funds were negative in the individually-funded systems in most of the countries belonging to FIAP (Latin America and some Eastern European countries<sup>3</sup>) during the year 2008, fluctuating between levels of +7.2% and -26.7%. Only three countries out of a total of eleven managed positive real yields in that year. The average yield for that year was -12.7%.

During the two following years, real yields staged a strong recovery. In fact, an illustrative index of the real yields accumulated in the period between 2008 and 2010, with base 100 in December 2007, shows that by the end of last year the countries evaluated were registering positive real accumulated returns of up to 29% in the period concerned, with the exception of one single country (see Graphs N° 1 and N° 2).

During the year 2009, annual real yields fluctuated between 7.3% and 32.9%, with an average of 17.8%. In the following year the range of yields varied between 2.0% and 17.0% with an average of 10.1%.

As of December 2010, real historic yields<sup>4</sup> were located on average at an annual minimum of 2.5% and a maximum of 10.5%.

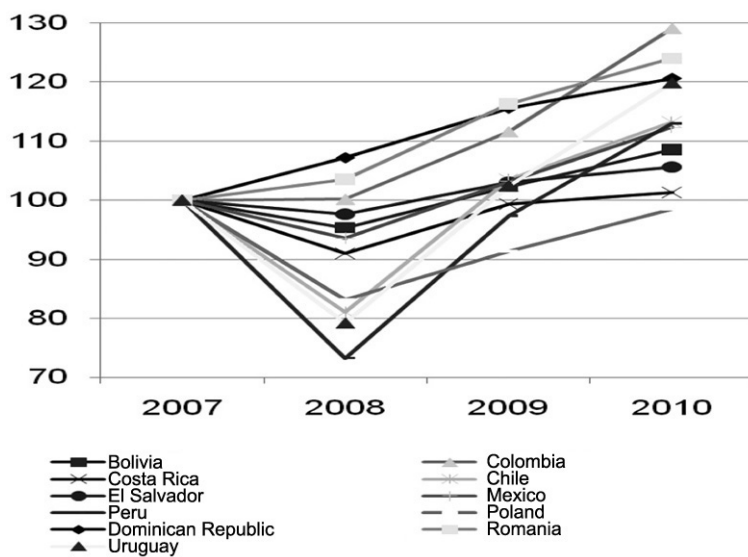
3 *Bolivia, Chile, Colombia, Costa Rica, El Salvador, Mexico, Peru, Poland, Dominican Republic, Romania and Uruguay.*

4 *Yield obtained since the system began, expressed on an annual basis in local currency and adjusted for inflation (Consumer Price Index).*



GRAPH N° 1

REAL YIELDS ACCUMULATED (BASE INDEX 100 = DECEMBER 2007)

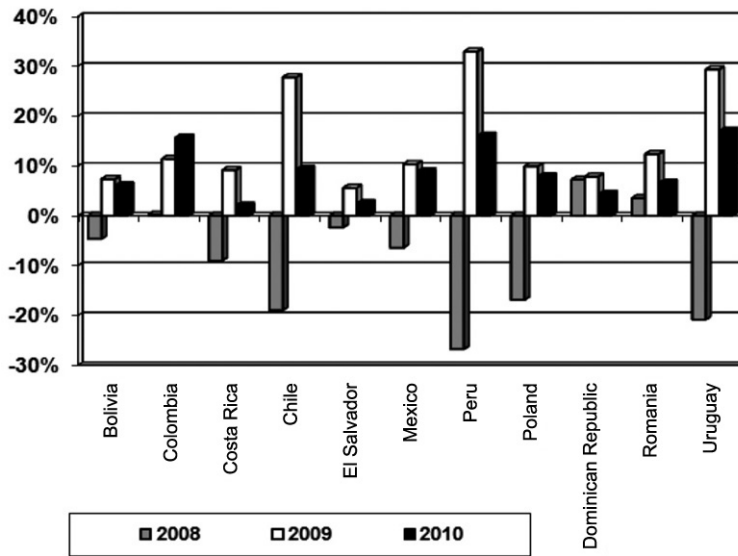


SOURCE: FIAP.

NOTE: CHILE: FUND C; MEXICO: WEIGHTED AVERAGE OF THE FIVE BASIC SIEFORES; PERU: FUND 2.

GRAPH N° 2

## REAL ANNUAL YIELD OF THE PENSION FUNDS IN LATIN AMERICA



SOURCE: FIAP.

NOTE: CHILE: FUND C; MEXICO: WEIGHTED AVERAGE OF THE FIVE BASIC SIEFORES; PERU: FUND 2.

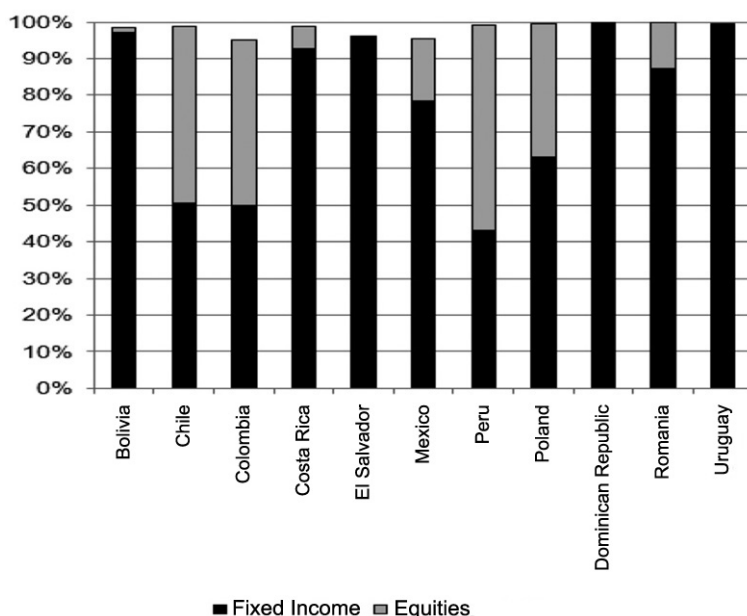
The annual variability observed in the yields of the pension funds is a consequence of the cycles experienced by the local and international financial markets and the system of valuation used, which reflects the market prices of the instruments in which the pension resources are invested. There is relative consensus on the advisability of using this method of market-price valuation for the instruments in which pension funds are invested, because of its advantages in the sense of giving a better reflection of the true value of the assets in which those funds are invested and avoiding unwanted transfers of wealth between members and/or unsuitable incentives for managing the investments. This is so, despite certain practical difficulties that may be produced by this system of valuation, especially in capital markets with a low level of development and little depth in trading.

The yield results presented above are given in a context in which a considerable proportion of the pension funds is still invested in fixed income instruments,

though this is decreasing. The FIAP data shows that in December 2010 the average investment in instruments of this type in the countries evaluated was approximately 77% of the portfolio, fluctuating by countries between 43% (Peru) and 100% (Dominican Republic). On the other hand, average investment in equities amounted at that date to only 21% of the portfolio<sup>5</sup>, varying between a minimum of 0% and a maximum of 56% (see Graph N° 3).

GRAPH N° 3

PENSION FUNDS' INVESTMENT IN FIXED INCOME AND EQUITIES  
[% OF TOTAL FUNDS UNDER MANAGEMENT]

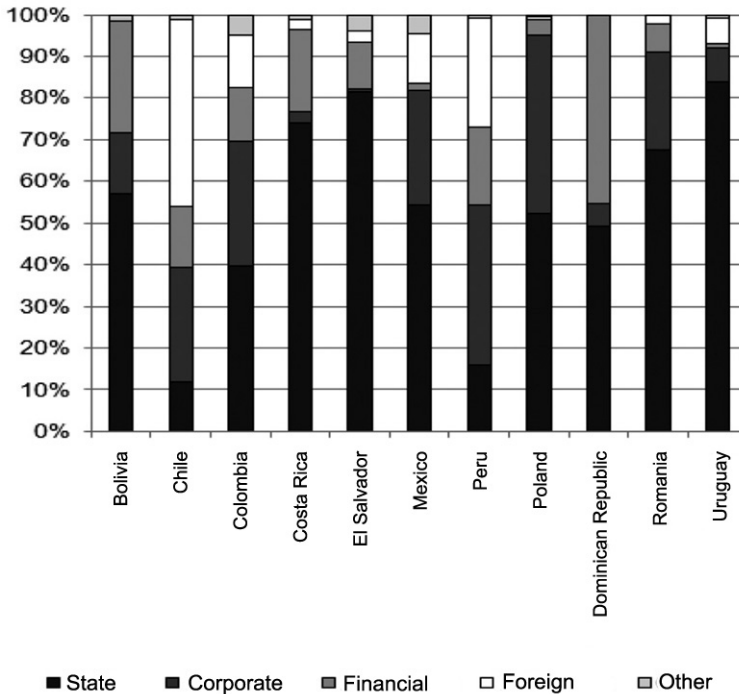


SOURCE: FIAP.

The information as of December 2010 also indicates that the main destination of the investments, per issue, continues to be the State Sector, with an average share of 51%. This is followed in importance by the Corporate Sector, the Financial Sector and the Foreign Sector, with 22%, 16% and 12%, respectively (see Graph N° 4).

5 The percentages of investment in Fixed Income and Equities do not add up to 100% because there are instruments that could not be classified in either of that categories.

GRAPH N° 4

PENSION FUNDS' INVESTMENT BY ECONOMIC SECTOR  
[% OF TOTAL FUNDS UNDER MANAGEMENT]

SOURCE: FIAP.

## III. Aims of measuring pension fund performance

As is clear from what has been described in the previous sections, in individually-funded systems that value their financial instruments at market prices, members face the risks that are an inherent part of the cycles that occur in the financial markets, which affect the prices of the assets in which the pension funds are invested. This does not necessarily affect the process of saving aimed at obtaining specific pension objectives, to the extent that it is a matter of cycles and not more lasting trends.

Due to these risks and the impact caused by the latest world financial crisis, there is a growing interest in evaluating the pension funds' performance. The trend seen in

some countries, towards a greater preponderance of defined-contribution schemes with benefits that depend on capitalization, also contributes to this interest because the size of the pension is more closely linked to the pension funds' performance.

It is important that any evaluation made of the results obtained on investment management should take appropriate care to consider the aims of the pension funds, because these differ from those sought by other investors. The long-term nature of pension savings must lead to longer terms for measuring results and different ways of measuring risk. In spite of this, the indicators used to evaluate the results of the funds' investments are in many cases similar to those used for short-term investors of another type.

The problem is that the pension funds that show the best performances in the short term are not necessarily those best aligned with the long-term aims of the pension resources<sup>6</sup>.

On the other hand, the periodic analysis of yields makes no sense if they are not compared with specific "benchmarks" that are appropriate for pension savings.

### **What are the aims in measuring the performance of the pension funds?**

It is possible to suggest at least three aims for measuring the performance of the pension funds:

- a) To evaluate the relative management performance of the various administrators competing in the market, to provide members with information that enables them to take decisions;
- b) To check that administrators are complying with the minimum yield that the laws and complementary regulations require them to provide, where this applies;
- c) To analyse whether the pension funds' performance is consistent with the long-term aim of the pension resources, which is to provide members with adequate replacement rates.

6 For example, certain analysts emphasise the fact that some pension funds have obtained high yields in the short term by investing a high proportion in equity instruments from emerging countries. At the same time they point out that the most appropriate approach, from the long-term point of view, is to have a more diversified investment portfolio with less weighting from emerging economies and more weighting from developed countries.

This article will concentrate its comments on the first and third of the aims given.

### **III.1 Evaluation of the administrators' relative management performance**

Which indicators should the authorities and administrators give members concerning the investment results of the pension system?

Providing an answer to this question is not easy, because of a series of restrictions and conditions that limit the effectiveness of efforts to publish the results obtained, given the characteristics of the members themselves and of a mandatory pension system.

#### **Restrictions and conditions that exist for evaluating management performance and publishing the results obtained**

In the first place, various studies have confirmed that the average member in both mandatory and voluntary pension systems has a low level of financial culture, even in countries with greater economic development and per capita income than those included in this study. Furthermore, this situation does not apply only to members belonging to average and low-income segments. For example, in Chile's case there are recent surveys showing that a considerable proportion of the population has no idea how to define what is meant by "yield", even in the high socio-economic sector. Improving financial culture is a process that may take many years, or even decades.

A second issue has to do with the nature of the pension product, which is long-term and somewhat intangible for most members of the pension system, especially among young workers. It is necessary to overcome the lack of interest shown by many members, so that they become concerned about their pension situation sooner rather than later and take well-founded decisions that will improve their pension amounts in the long term, including investment structure and the choice of administrator. To do this, it is necessary to have simple indicators available to evaluate the relative performance of the pension fund administrators.

In addition, studies on the economics of behaviour as applied to savings markets show that savers suffer from inertia in many cases and postpone taking decisions. This is why "default" options have been included increasingly in the 401-K plans in the United States in various areas that involve workers in taking decisions, such as their participation in the plans, for example, and the investment structure. Another example of the practical application of the economics of behaviour to the process of saving and the pension system is to be found in the Chilean pension reform of 2008, which included the start of mandatory participation and contribution for self-employed workers as from 2015. The reform defined a transition period between the years 2012 and 2014, during which the self-employed will be able to contribute



increasing percentages of their income, but will be able to register their option not to contribute during that period. If they do not do so, then they will have to contribute. This design is based on the experience of inertia in taking decisions referred to above, with the expectation that such inertia will mean that many self-employed workers do not register their decision not to contribute in a mandatory way during the transition period.

The factors mentioned also have a bearing on the fact that members in many countries have little awareness of their property rights over the resources accumulated in their individual accounts; they devote little time to caring for them and improving their results early on and fail to defend them vigorously when they are threatened (as in the case of Argentina, for example).

This series of characteristics mentioned above constitute restrictions and conditions that must be taken into account by the authorities and the industry when defining and publicising indicators of the relative results of the pension fund administrators.

The practical recommendations arising from the restrictions and conditions described are that any relative risk indicators that are established must be as simple as possible, given the average member's low level of financial culture, avoiding the use of over-specialised technical language. Furthermore, there must be an ongoing process of education about members' rights and obligations, with systematic communications from the authorities and administrators and standardised information that facilitates comparisons between administrators. The information supplied must be consistent, so that members are not confused and are enabled to compare the different variables effectively and so take decisions that are as well-founded as possible. Finally, it is important to connect the information given with the final aim of the pension systems, which is to supply appropriate amounts of pension.

### **Which performance indicators are most suitable for supplying members with information?**

Earlier on, we pointed out the importance of taking into account the fact that the aims of pension funds are different from those of other institutional investors and that this should result in longer periods for measuring results and different risk measurements being considered.

The most usual approach is for supervisory bodies and administrators to publish or disseminate historic investment yields for different periods of time, without including the aspect of risk, and this can lead to mistaken conclusions. As a point of fact, even for funds of the same type (e.g. A-Type Fund in Chile or Fund Type

3 in Peru) there may be important differences in the administrators' investment structure which influence the risk levels faced by members and the yields obtained, corrected for risk.

With regard to the periods for measuring the relative results between administrators, it can be argued that the longer these periods are, the more feasible it will be for the indicators to give a true reflection of the results of the various administrators' management performance, without these being affected by the effects of short-term situations, whether positive or negative. In fact, in short periods of time it is usual to see frequent changes in the yield positions of the administrators. Furthermore, longer measurement periods are also more consistent with the aim of a pension system. On the other hand, shorter evaluation periods have the advantage of showing the improvements experienced by certain administrators more quickly. These are reflected in successful investment moves that average out with other historic results over longer periods. It is also important to consider that the presentation of yield information for many different periods, probably with the administrators showing differing yield positions, will probably end up confusing the member and inhibiting his/her ability to take decisions.

As regards including risk among the management indicators of the pension fund investments, there are various studies that have proposed different methods<sup>7</sup>. FIAP has also analysed the subject on different occasions at round tables and seminars.

These studies and initiatives have enabled enormous progress to be made, though there is no consensus on the matter. Among the indicators suggested, it is possible to mention, for example, the Sharpe Ratio, "Sharpe's Style" and Value at Risk (VaR). There are important differences between them. The Sharpe Ratio measures both risk and yield in a single indicator; "Sharpe's Style" seeks to evaluate the administrator's management performance by comparing it with an investment portfolio of the same style; while VaR estimates the maximum potential loss for an investment portfolio over a specified period of time, given the historic information on yield and a certain level of confidence.

At the practical level it is also possible to find attempts to provide information that includes not only the yield of the investments, but also their risk. For example, the Superintendence of Pensions in Chile periodically presents the risk of each type of fund (A, B, C, D and E), using a certain assumption of initial accumulated savings, and the yield and its variability since the multi-funds for pensions came into being in October 2002. The Superintendence presents the risk as the range within which the monthly profit or loss of each type of fund could lie, with a 95% occurrence probability.

7 For example, see "Evaluating the Financial Performance of Pension Funds", World Bank, 2010.

It is not the purpose of this article to propose specific yield or risk indicators or others including both aspects, but to draw attention to certain experiences and lessons that should be taken into account in order to define them. Concerning the risk issue, it is obvious that technically the investments' risk should be included in the evaluations but that, practically, it will be difficult for the average member to understand this concept. In fact, the indicators that include risk conspire against simplicity in communication with members. They require a certain degree of financial sophistication to understand them and are not necessarily the most appropriate risk measurements from the point of view of the long-term goals of the pension system. In any case, in the author's opinion, indicators such as "Sharpe's Style", designed to measure the relative performance of the administrators, might be more appropriate, to the extent that they are presented in a simplified form to increase the probability of their being understood by the members and used appropriately for taking decisions.

## Conclusions

In practice, it is difficult to replace yield ranking as an indicator of the pension fund administrators' performance. Probably rankings for periods between 12 and 60 months should be given. Including risk is difficult because of the low average level of financial culture among members.

Whatever the indicator used, progress needs to be made to improve communications with workers, so as to make these understandable for most of them, bearing in mind that they have a limited ability to grasp the more complex aspects of the system. It is important to continue adopting and deepening measures to provide more education and guidance for members in financial matters, though it must be borne in mind that achieving significant progress in this field is difficult in the short term, though possible in the medium and long term. Furthermore, it is a task that must be undertaken, given the freedom and power of decision that members have in individually-funded systems that are privately and competitively managed.

It is also important to consider the large amount of evidence that exists with regard to certain characteristics of members, and people in general, when confronted with the process of saving: inertia, postponement of decisions, high incidence of the options established by default in the results recorded. This last underlines the importance of structuring options of this type, which are an essential complement for systems that offer freedom in the choice of funds. When people are incapable of taking decisions or are not prepared to dedicate the time needed for doing so, and have no-one to guide them, they tend to act on the basis of beliefs or practical experiences that may very well lead them to take decisions that are not appropriate for them from the point of view of the aim of pensions.

### III.2 Is the administrators' performance in line with the long-term aims of the pension systems?

Identifying performance indicators that are appropriate for the pension funds in the long term is intimately linked with defining investment portfolios ("benchmarks") that are consistent with the aim of providing adequate, secure pension levels in the passive stage and also with the characteristics of the members.

On the other hand, the achievement of that aim depends on various factors, the most important of which are: the administrators' management performance, measured against the benchmarks that have been established; the rules and regulations that exist in pension systems based on individual funding and that administrators have to comply with in their management, and which determine directly or indirectly the portfolios or benchmarks around which they will be competing; and the level of development and access to related markets such as the capital and insurance markets.

This is a complex process that also requires definition of the maximum deviations that will be tolerated in relation to the defined "benchmarks", plus a constant analysis and control of such deviations.

Various alternatives have been suggested concerning the way in which pension fund investments should be regulated and "benchmarks" defined.

In practice most countries have set quantitative investment limits in their regulations, with the aim of achieving diversified portfolios with limited risk, without defining exogenous "benchmarks". In addition, various of them have made progress in setting up multi-funds for pensions, with differences in such limits depending on the fund which result in different levels of risk. Some systems grant more freedom to members than others to adapt the investment structure to their personal preferences and characteristics. However some countries, such as Colombia, do include exogenous "benchmarks" for evaluating the yield performance of the pension funds, while others, such as Mexico, limit the risk to which the funds can be exposed by means of VaR.

Among analysts, other options have been suggested for mandatory pension systems, such as the creation of the so-called "life-cycle funds". It is suggested that these funds should be defined in a way that is consistent with the pension systems' long-term aims. For this it would be necessary to take into account not only the age of the members, but also other factors such as the pension benefits received from other pillars of the system, the profile of work income over time, the rate and density of contributions, the levels of risk tolerance and the correlation of these factors with

the returns on the assets. In addition it is argued that funds of this type could serve as a “benchmark” for measuring the results obtained by the different pension fund administrators. It is also stated that this option may move competition between administrators away from short-term yields towards attempting to achieve better results by comparison with the “life-cycle funds” defined, thus producing a better alignment between investment management and the long-term aims of the pension resources.

According to this approach, governments and supervisory authorities would have to play a more active role in defining the aims of the pension funds for various, though limited, categories of workers<sup>8</sup>, and to set up “benchmark” portfolios that would guide the funds’ investment structure, facilitate the taking of decisions on the part of the workers and allow a performance evaluation in line with those aims. These “benchmarks” would also help to define default options for those workers who do not take a decision.

Another proposed “benchmark” that has been suggested, against which the pension funds’ performance can be measured, is a portfolio of long-term indexed fixed-income instruments, which protects the saver against reinvestment and inflation risks and presents lower levels of relative risk in the long term compared with other alternatives (though the short-term risk would increase due to the fluctuations of market interest rates).

In this process of defining investment regulations and explicit or implicit “benchmarks”, it is important to identify the potential obstacles that may occur and may affect the decisions that are finally adopted. For example, the main problems in defining explicit “benchmarks” are political risk (who is to be responsible for defining them?); the costs and difficulties of implementing them; and the complexity of educating, guiding and advising members on them and on performance results in their choice of pension funds and administrators.

In any case, the evaluation of the performance of the pension funds from a long-term perspective is a necessary task that should make it possible to improve the regulation of investments and bring investment management into line with the aims of the pension system, ensure access to investment structures that are compatible with those aims and mitigate existing or emerging risks, and reinforce the technical bases behind the investment rules of the different pension funds that exist.

8 To avoid an excessive increase in the costs and complexity of the system.

## Conclusions

The administrators and supervisors need to play a more active role in order to evaluate pension fund performance from a long-term perspective.

This process should lead to an identification of ways to improve investment regulation that make it possible to align such regulation and the management of investments more effectively with the long-term aims of the pension system.

The improvements must include the need to make it easier for members to take decisions and must define “default” funds for those who do not decide for any of the available alternatives.



# INVESTMENT AND INFORMATION REGULATIONS

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The idea of this present paper is to reflect on the risks associated with defined-contribution pension systems in general and the type of tools that can be used to mitigate them, both from the personal point of view and from that of public policies.

The article is arranged in the following way: first, a context is given for the discussion on what private pension systems aim to achieve, the main risks in the member's life-cycle, and the tools that exist for confronting those risks. Secondly, we analyse the role played by investment regulations and information in individually-funded pension systems. The document ends with a few conclusions.

## I. General context

The aim of private pension systems is to maximise an expected pension (which may or may not be complementary to a basic or solidarity pillar), subject to a given level of contributions and a level of risk or uncertainty about the future pension.

It is possible to identify five main risks in a member's life cycle in this context:

- (i) That associated with the labour market: if there is an unstable labour market, there will be pension gaps and that will mean low pension levels. In general, variability in wages and employment instability will be reflected in the balances of savings accumulated for pension purposes.
- (ii) That associated with the yield accumulated on the contributions: this corresponds to the risk associated with the investments made during the life cycle. Among these are variability risks, associated with variable returns, and also risks related with inflation if there is no indexed bond market that allows them to be hedged.
- (iii) Re-investment: this occurs because the accumulated savings have to be converted into a pension at retirement. This is not trivial, because if, for example, there has been a fall in local interest rates and they are low at the point when the person retires, a lower pension will be produced from the same accumulated balance.

If there are long cycles of “low” levels in interest rates (or if there are structural changes that imply permanent falls) the lower level of pensions for the same balance will be persistent.

- (iv) Longevity: this corresponds to the risk that the savings will run out if the pensioner lives longer than was predicted at the moment of programming the pension savings scheme.
- (v) Bankruptcy: this risk arises when the longevity risk is transferred to a third party, when a Life Annuity is purchased from a life insurance company, for example.

Apart from the risks mentioned above, there are political risks. These may be associated with ill-considered changes in the regulations and the resources accumulated in the individual account being expropriated. These risks are difficult to manage and mitigate, partly because of the lack of understanding about what the system is attempting to achieve and also about the levels of yield and volatility that can be expected over the course of time. One of the few mitigation mechanisms consists in constantly informing the public concerned, both at the private and at the public and political level.

What tools are there for confronting these risks? At the personal level there are four alternatives. Given that these are savings for a pension, the person can: (i) change the level of voluntary contributions (complementing the mandatory savings); (ii) postpone retiring age; (iii) choose funds according to the desired risk-return profile in the life cycle; or (iv) pick competent fund-managers.

At the level of centralised (or policy) decisions, there are seven tools: (i) the guaranteed minimum pension is obviously a mechanism to mitigate risk, but of course at the expense of the contributors; (ii) the mandatory contribution level; (iii) retiring age; (iv) tax incentives to encourage more saving; (v) the rules of the game for the different types of fund and for competition between administrators; (vi) the rules for choosing funds; and (vii) the information provided for future pensioners.

Now, which tools exist to confront each of these risks? Let’s look at them one by one.

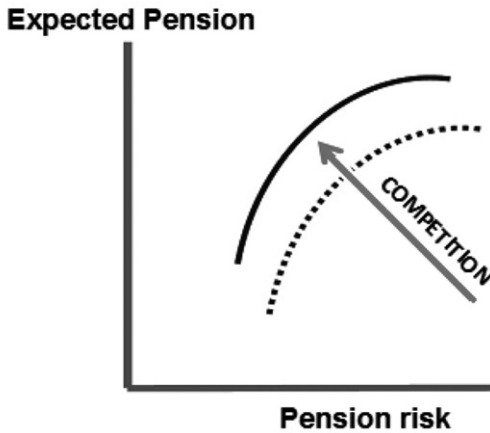
- (i) The risk associated with the labour market: there are not many alternatives for tackling it. Since this is a problem of the labour market, one alternative is to ensure that **information is provided** so that people realise that they will not achieve a satisfactory pension with their current contributions. It is hoped that this will somehow spur them on to pay **contributions at a higher level or to postpone the age of retirement**. The other tool that remains is a centralised one, and consists of a **guaranteed minimum pension**, which is the logical response to the instability of the labour market, since this is not a problem that can be attributed to the pension system.

- (ii) Longevity: neither are there many alternatives for confronting this risk. Again, people must be **informed**, so that they know that if they live longer than was initially foreseen, they will have lower pensions. Therefore the hope, once again, is that this will lead them to **increase their level of contribution** or continue working for longer. **Tax incentives** in this case would probably work better, and from the point of view of tools that are centralised from the regulatory authority, there are also the **guaranteed minimum pension**, the **mandatory level of contributions** and the **retiring age**. But the fundamental point is conceptually simple: if it is necessary to make withdrawals from a stock of savings over a longer period, the level of those savings must be greater, which means saving more and/or for longer.
- (iii) The risk associated with accumulated yield on contribution and reinvestment: as individual tools, **information** is needed from the authorities to help the member in the **choice of fund** and **administrator**. Generally, the choice of administrator is of absolutely secondary importance for purposes of mitigating risks, compared with the choice of the “appropriate” fund for the level of risk that the person is prepared to tolerate. In general, competition will revolve around similar portfolios, regardless of how the system is designed, and the choice of fund (more conservative or more daring) is therefore much more important and its results potentially much more dramatic than the choice of different administrators for a particular type of fund. Here the **game rules for each type of fund** are fundamental for the administrators, as are the **game rules for choice of funds**.
- (iv) Political risk: to confront this, there is no alternative except that of engaging in constant information and communication campaigns with all the stakeholders in the system, particularly with the political world, to explain what a system of defined contributions is and to enable them to realise that ups and down in yield are a natural part of choosing funds with a higher risk. It is generally impossible to avoid the risk-return trade-off.

## II. What is the role of investment regulation and information in the individually-funded systems?

The idea is that in some way the pension funds should compete in the area of the expected pension (which is the “good”), by reducing the pension risk (which is the “evil”), and that competition should take us to an efficient frontier in the risk-return area, measured not in terms of short-term volatility, but in pension units (see Graph N° 1).

GRAPH N° 1

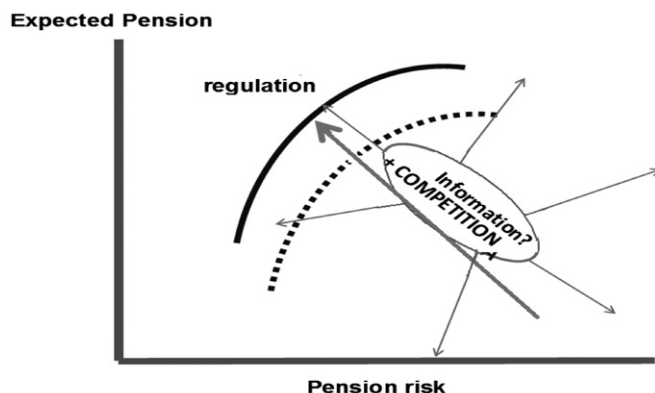


SOURCE: PREPARED BY THE AUTHOR.

A hypothesis: *“The regulation of investments can help us bring portfolios closer to an efficient frontier or region, measured in pension units. However, information for members is probably no use to us at all for that purpose”.*

This is so because it is unlikely that the mere fact of providing people with information will actually result in an understanding of the concept of pertinent (long-term pension) risk, and that the decisions taken by members, combined with the competition between administrators will take us in the desired direction towards an efficient frontier (measured once again in future pension units) (see Graph N° 2).

GRAPH N° 2



SOURCE: PREPARED BY THE AUTHOR.

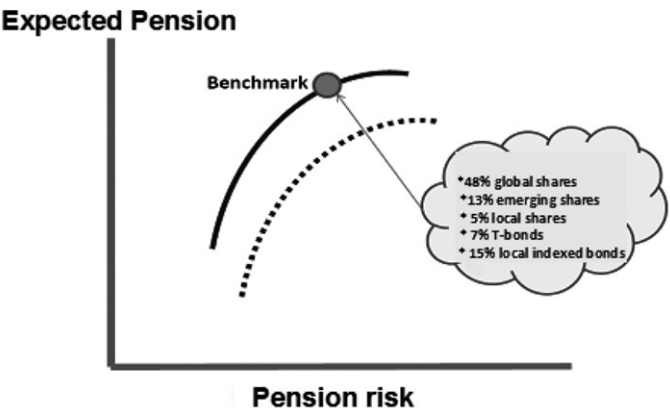
## 1. Investment regulation

Investment regulations fix the rules of the different games, for the multi-funds, for example, (if such exist), and we basically have various alternatives that have been put into practice in the world and in Latin America particularly: a risk limit of the Value at Risk type (VaR); exogenous benchmarks; and quantitative limits per asset class (which imply an endogenous benchmark resulting from competition). We shall be looking at these alternatives below.

- i. VaR risk limit. This system is used in Mexico for example. The idea of VaR is that, given a frontier, a limit is fixed by law for the maximum risk that the pension funds are allowed to assume. The expectation is that with that risk limit, the competition by yield will lead to a more efficient frontier (see Graph N° 3). However, VaR is a transformation of short-term volatilities and does not measure the long-term pension risk (the pension risk is not the same as the short-term volatility). The VaR tends to consider short-term fixed income (such as deposits) as risk-free, because they have no volatility. This is conceptually correct in the short term if we were talking about a bank, but in the context of pensions, the long-term risk cannot be measured properly using VaR. For example, long-term indexed bonds will have significant volatility and therefore a high VaR, but bonds of this type reduce pension risk.

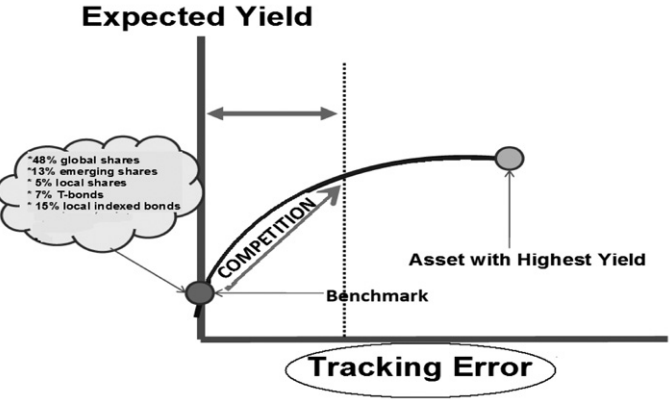
- ii. Reference portfolio or exogenous benchmark. This scheme has been partially tested in Colombia, for example. It means that a reference portfolio or exogenous benchmark is applied to the system (if there are multi-funds there would be an exogenous benchmark for each type of fund), the aim being that the administrators should take it as a “point of reference” by imposing a maximum tracking error limit, in other words, a maximum limit for the volatility of the difference between the return of their own portfolio and that of the benchmark, in the hopes that the administrators, through competition, will seek their possibility frontier, looking for the assets with higher yield to combine them with the benchmark. (With this definition, investing exactly the same as the benchmark has no risk at all, because the delta between the return on one’s own portfolio and that of the benchmark is zero, and therefore the variability is zero), (see Graphs N° 3 and N° 4). So, if an exogenous benchmark which is also efficient in terms of the desired aim can be imposed in this way, competition would occur around that benchmark, reducing the risk by fixing a maximum limit for deviations from the benchmark. This solution seems ideal from the conceptual point of view, but it has the following problems: (i) what is the optimum exogenous benchmark?; (ii) a mistake in deciding on the benchmark will result in inefficient portfolios; (iii) there is a political risk associated with whomever fixes the exogenous benchmark; (iv) it is a static alternative: for example, how can new asset classes that may appear be included in that static benchmark?; how can we encourage the development of the local capital market so that it produces instruments suitable for pension, if we have a static reference portfolio?; (v) how can the real availability of the assets included in the benchmark be taken into account (if it is also assumed that transactions take place at closing prices, when the managers of large portfolios can never carry out transactions at closing prices); and (vi) how can the tracking error and its limit be measured? This is not a trivial matter either.

GRAPH N° 3



SOURCE: PREPARED BY THE AUTHOR.

GRAPH N° 4



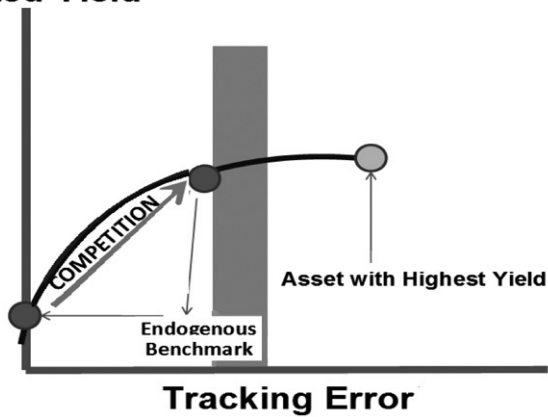
SOURCE: PREPARED BY THE AUTHOR.

- ii. Quantitative limits per asset class. This alternative, which is currently used in Chile and Peru, for example, produces an endogenous benchmark, in other words a reference portfolio that is the result of competition. This endogenous benchmark, which is convergent and changes over time (it is dynamic), depends on the history of the investments and their regulation. There is tracking error here too as a relevant measurement of risk from the administrators' point of view, in other words, volatility with reference to this endogenous benchmark. Competition would once again tend to lead to asset classes being chosen that have higher expected yield, - and probably higher risk. Investment limits must therefore be imposed to limit the maximum risk allowable for the administrators (see Graphs N° 5 and N° 6). Since the benchmark is endogenous, there is a problem that the reference portfolio may in the medium term move towards the maximum risk limits. So this is determined by the competition within certain limits (this being in fact a self-referring portfolio), and the limits have to restrict the taking of excessive risks. There is no guarantee of convergence towards efficient portfolios (although in order to judge this, it is first necessary to find out what such efficient portfolios really look like). With some notion about them, investment limits can be fixed in a way that is consistent with portfolios that are efficient on long-term horizons. Making a balance, quantitative limits per asset class can leave room for efficient portfolios, but there will be a tendency to overload the limits of the truly risky classes. Furthermore, these are self-referring portfolios that are not necessarily efficient and there is an obvious need for ex-post control. With regard to this last point, a Technical Investment Council (such as now exists in Chile) may monitor ex-post the obvious inefficiencies of the resulting portfolios. The system of the Technical Investment Council in Chile is dynamic and practical to a certain extent, because it considers new asset classes and they are included in the funds as they arise. Because of the way they are constructed, they do not have the problems of yield measurement assumptions, nor do they assume that transactions take place at closing prices.



GRAPH N° 5

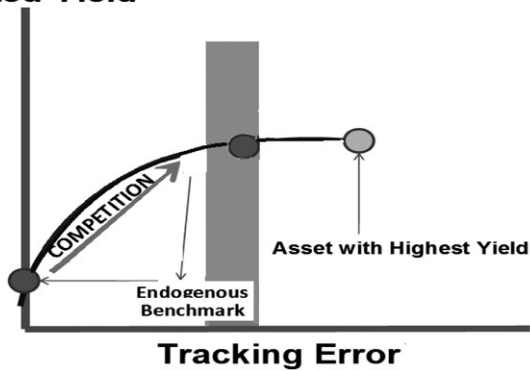
### Expected Yield



SOURCE: PREPARED BY THE AUTHOR.

GRAPH N° 6

### Expected Yield



SOURCE: PREPARED BY THE AUTHOR.

Of the systems analysed, the least bad, in the author's opinion, is that of quantitative limits per asset class, linked with a process of constant ex-post monitoring, which must be independent of the country's political process. This independence of the political process is important, because it can to a certain extent insulate the pension system against the risks associated with the political cycle. A possible model is that of Chile's Technical Investment Council.

## 2. Information regulation

Information on past yields, on the one hand, is of little use for indicating the yields to be expected in the future, because the typical volatility (standard error) is sufficiently high to mean that the risk premiums can only be appreciated over extremely long periods of time (not even 10 years are enough). On the other hand, information on past yields is not necessarily useful for showing the level of the investments' risk, and even less so for showing expected values for the future.

In fact, the purpose of the information on past yield should be to help in comparing yields between administrators (performance evaluation), encouraging yield-based competition. Between 3 and 5 years may be sufficient to identify statistical significance (more time than this does not make much sense, because the environment and the administrator change).

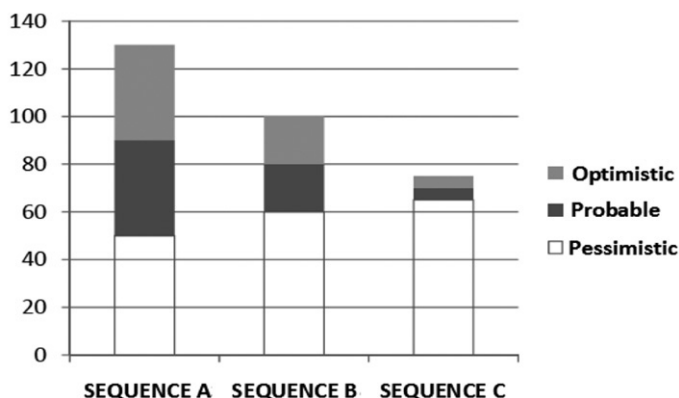
Information about the expected future pension is necessary in order for people to check their own pensions. The idea is to *empower* the member. It is vital to make members feel that they are the owners of their savings and are responsible for the consequences of their decisions to adjust saving levels, make a voluntary choice of funds, or simply to justify a possible choice by default. And it is necessary to present this in a simple, general form and encourage regular review, standardising the parameters with which information about future pensions is presented. It is also important to highlight the control variables that may affect the range of possible consequences, in terms of the future pension.

An example of this is being produced by the Superintendence of Pensions in Chile in conjunction with the Organisation for Economic Co-operation and Development (OECD). The aim is to show people what the consequences of changing certain parameters would be, given: the level of accumulated savings; the level of voluntary savings; the fund chosen, or the sequence of funds to be chosen over time. So it starts (for example) with the following assumptions: an income of \$100, a period to retirement of 20 years, an average of 1 month's unemployment per year, and additional monthly savings equal to zero. On this basis, a calculation is made of the balance of savings in the individual account that ought to exist, showing the member the consequences in the following way. "If you take sequence A, gradually working through the riskiest

funds, the interval of possible consequences in terms of pension will be.... (there is an optimistic case, a probable case and another pessimistic case) and if instead you choose a more conservative alternative, the range of possible results will be narrower, but the expected pension will be lower" (see Graph N° 7).

GRAPH N° 7

PENSION LEVEL IN VARIOUS SCENARIOS, DEPENDING ON THE SEQUENCE OF FUNDS CHOSEN



SOURCE: PREPARED BY THE AUTHOR.

NOTE: THE CALCULATIONS ARE MADE ON THE BASIS OF THE FOLLOWING ASSUMPTIONS: AN INCOME OF \$100, A PERIOD TO RETIREMENT OF 20 YEARS, 1 MONTH'S UNEMPLOYMENT PER YEAR AND ADDITIONAL MONTHLY SAVINGS EQUAL TO ZERO. THE BALANCE OF SAVINGS IN THE INDIVIDUAL ACCOUNT IS CALCULATED ON THIS BASIS.

Giving information in this form, and managing to arouse people's interest in understanding it and taking decisions on that basis, will empower people and give them, when all is said and done, a notion of the importance of choosing a fund and particularly of personal saving.

### III. Conclusion

It is vital to be consistent in terms of which tools are used for which objectives. There are risks and tools that can only be mitigated at the level of centralised economic policies. Others can be controlled at individual level, but timely ad hoc information is required. As regards investment regulations, I recommend that we should recognise our limitations in measuring risk and finding optimum long-term portfolios while the relevant knowledge is advancing. Given the above, it is natural to allow ranges with

different risk levels for the portfolios, but there must be permanent ex-post monitoring. Dynamic quantitative limits with independent supervision can fulfil this role.

As far as historic information is concerned, this should limit its purpose to a comparison of yields between the various players, which is technically feasible. On the other hand, expected long-term values are useful to help the members check their future pension to some extent. An important objective is to empower them, (making them feel responsible for their decisions) before it is too late.



# PENSION FUNDS AND INFRASTRUCTURE DEVELOPMENT

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The purpose of this present article is to explain why infrastructure should be in the pension funds' portfolios and illustrate how the advantages that are generally mentioned with regard to investment in instruments of this type (that they are low-risk, long-term investments, index-linked and anti-cyclical, with excellent returns) are perfectly valid. The document is arranged as follows: first there are some general thoughts on how the mechanism for financing and operating infrastructure projects has evolved; second, the experience of Interconexión Eléctrica S.A. (ISA), a company in the electricity and road infrastructure business, is analysed, illustrated by cases of projects in various countries. Finally the article ends with a few conclusions.

## I. General considerations

Thirty years ago, it was held that private involvement in road franchises, electricity, telecommunications or other utilities was impossible, because these were public goods or natural monopolies, and there was a whole line of argument stating that the use of infrastructure should be subsidised, wholly or partly, by the State. The same thing was true of pensions.

However, the paradigm gradually changed and, just as a pension system was invented in which the Pension Fund Administrators (AFPs) are nothing more than dealers, providing a service which continues by its nature to be public and of the State, because it is the State that regulates what those administrators have to do, so the same thing is true of infrastructure issues. Since numerous countries had fiscal difficulties, which reduced their ability to finance new projects and keep the existing ones in good condition, in the 1990s the State became a direct supplier, fixing the rules of the game and hiring private enterprises which ought, theoretically, to provide services of a very high quality by using their management methods.

So, as from the 1990s, greater private-sector intervention began to be accepted in economic activities. Various industries were de-regulated and numerous public companies were privatised. Governments adopted the Public-Private Partnerships (PPP) model for creating and administering new infrastructure projects, in which the

private sector is assigned the task of setting up and providing the services, while the risks are split between the State and the private sector.

There are large gaps in infrastructure and numerous options for financing them. The real possibilities for private investors and pension funds depend on how governments decide to finance the investments and on the characteristics of their institutional framework. In this context, certain conditions have been found to be indispensable for initiating infrastructure franchises: there must be financial markets that work, there must be capital markets that allow savings to be channelled into financing infrastructure projects and, obviously, the structure of the franchise and the allocation of risk must be such as to make the project attractive. This has enabled the pension funds to become major players in this business. As a matter of fact, it is not only in the Latin American pension systems that this has occurred, but also in Canada or Australia, for example, where enormous sums of pension savings are being handled. This involvement, via PPPs, can happen in different ways: first, directly, by purchasing specific bonds related with companies or projects; second, indirectly, by purchasing Government bonds, stakes in the so-called "infrastructure funds" or investing in the shares of infrastructure firms.

The attraction of being involved in this type of PPP for institutional investors such as the pension funds lies in the fact that these are big, naturally long-term investments, which generate a stable, predictable cash flow, have an anti-cyclical behaviour and allow excellent risk allocation.

## II. ISA's experience in the infrastructure business

Interconexión Eléctrica S.A., ISA, which began as an electricity company, now has a much wider commitment and is a linear infrastructure company, whose main business is electricity transmission. The company, which was originally entirely state-owned, decided to seek expansion alternatives outside Colombia, in view of the changes that occurred in the Colombian electricity sector in the mid-90s. The company embarked on a reorganisation process and is today quoted on the stock market, with ample involvement of institutional investors (the pension funds own approximately 20% of the company).

ISA's income is something around USD 2 billion for this year 2011, basically in franchising activities. Such businesses normally generate large amounts of cash. ISA currently has bonds in circulation worth about USD 2,900 million, most of which are in Chile in the road-building business.

As was mentioned, ISA's main activity is electricity transmission infrastructure, a business in which it is possibly the most important international player in Latin America. ISA controls the Colombian and Peruvian systems and has a very large share in Brazil (the Sao Paulo transmission system) and in Bolivia.



## 1. The electricity transmission business

The electricity transmission business is basically characterised by franchise projects, with different methods of functioning depending on the country concerned. The projects have the following features:

- (a) BOO (Build-Own-Operate) and BOOT (Build-Own-Operate-Transfer) financing methods. In the case of BOOT, the person financing the project is responsible for the building and operation of the installations as owner, and expects to transfer them to the donor government at some future date, usually without cost.
- (b) They are large initial investments.
- (c) There is certainty about the income.
- (d) There are high operating margins. The EBITDA (profit before interest, tax, depreciation and amortizations) is between 80% and 85% on average.
- (e) The franchises are for long periods of time.
- (f) They constitute a natural monopoly.

Normally governments put these projects out to tender and they are awarded to the company that charges a lower annual instalment over a long period, income that is received whether or not the transmission line is actually carrying electricity. The company awarded the tender will be paid over long periods (25, 30 or 35 years). The annual instalment is normally fixed in constant values (indexed), in some cases in local currency and in others in USD.

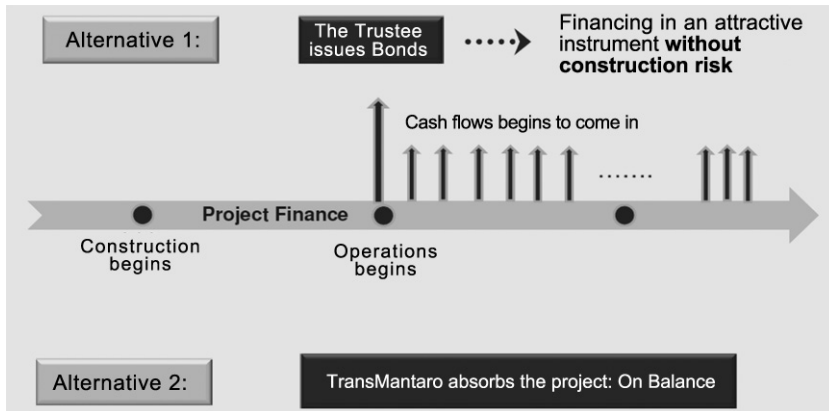
### Financing strategy in Peru

In Peru ISA controls three transmission companies, all issuers of bonds that are very much in demand with the Peruvian pension funds: Red de Energía del Perú (REP), Consorcio TransMantaro (CTM) and ISA Perú. These are very well-leveraged companies with relatively high levels of debt. Projects are being carried out there for a total of around USD 800 million. Due to the high level of debt, it was decided to create a trust (which is allowed by the legislation) to finance the Zapallal-Trujillo line, with irrevocable allocation of the income from those projects, and to use bank finance in the first instance. The financing at the beginning was not done by issuing bonds, but through the bank, "*Project Finance*", because normally bond-holders, the pension funds, do not like construction risk. The financing structure using Project Finance makes it possible for the company's indicators to remain comfortable and for new investment opportunities to be created.

In these businesses, once the project has been built, there is an absolutely pre-determined flow of income, making it very attractive for institutional investors. For this reason, once the construction of the project is finished, it can be financed with bond issues ("*On Balance*" financing reflected in the books) (see Figure N° 1).

FIGURE N° 1

## FINANCING MODEL OF THE ZAPALLAL-TRUJILLO PROJECT, PERU



SOURCE: PRODUCED BY THE AUTHOR.

## 2. The road infrastructure business

ISA entered the road infrastructure business recently, with a first foray into Chile. Road infrastructure projects present the following characteristics:

- (a) They work on the basis of a scheme of franchises.
- (b) They use the BOO method of financing (Build-Own-Operate).
- (c) They are projects involving large investments.
- (d) They allow high levels of leverage.
- (e) They are projects over long periods of time.

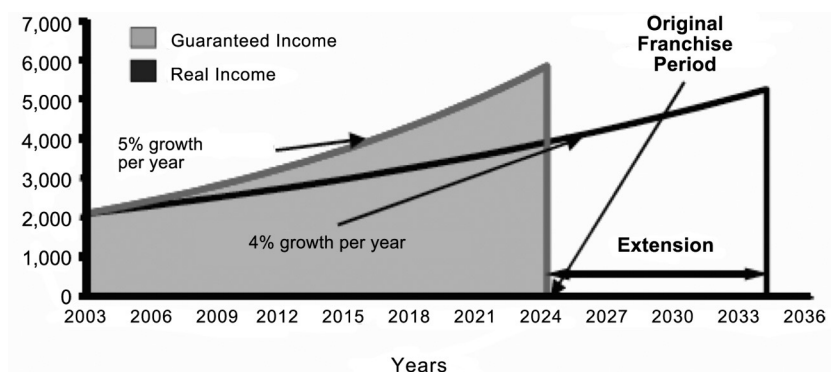
There have been very important developments in Chile in road franchising. Initially the story was: "I grant you this as a franchise and you take on all the risks associated with the business". However, although in theory road traffic grows at approximately the same rate as the economy, it sometimes falls, because there may be a recession and special circumstances may arise. So mechanisms for mitigating the risk began to be sought:

- (i) Guaranteed Minimum Income (IMG). According to the Law of Public Works Franchises, the policy followed by the Ministry of Public Works (MOP) is to guarantee that applicants for a franchise will receive certain minimum income for traffic. In return, whoever opts to work under the IMG system must share a percentage of the income (usually 50%) with the State when the returns exceed a certain value (normally 15%). The existence of IMG may significantly improve a franchise's ability to obtain financing, because it reduces the uncertainty associated with demand forecasts, establishing a floor for the franchise's income.
- (ii) Income sharing. Above a certain income threshold, this is shared with the MOP (this applies when there has been no move into an Income Distribution Mechanism (MDI)).
- (iii) Sharing of damages caused by risks of nature. Above the threshold of damages not covered by insurance, the MOP assumes a part (MOP ceiling for damage-sharing is 4,500 Unidades de Fomento (UF)<sup>2</sup>).
- (iv) Income Distribution Mechanism (MDI). Since the IMG involved problems of fiscal pressure for governments, Chile introduced the MDI 10 years ago, which means that the franchise is extended or curtailed until it achieves a total income at present value. Let us say for example that if originally someone had assumed that traffic would grow at 5% and in fact it grows more slowly, what happens is that the franchise is extended to guarantee that the present value, at a predetermined discount rate, remains steady (see Graph N° 1). This mechanism has become standard in the industry. In other countries, mechanisms of this type are being introduced more frequently every day, because they give investors peace of mind, make the business a certain one, and though possibly one may, as sponsor or owner of that project, have to solve temporary cash-flow problems, one knows that, at the end of the day, the financial return will remain steady.

2 *Unidad de Fomento. An index that changes in accordance with the inflation of the previous month. This index is calculated monthly and runs from day 10 of one month to day 9 of the following month.*

GRAPH N° 1

EXAMPLE OF EXTENSION OF FRANCHISE PERIOD WITH INCOME DISTRIBUTION MECHANISM (MDI)



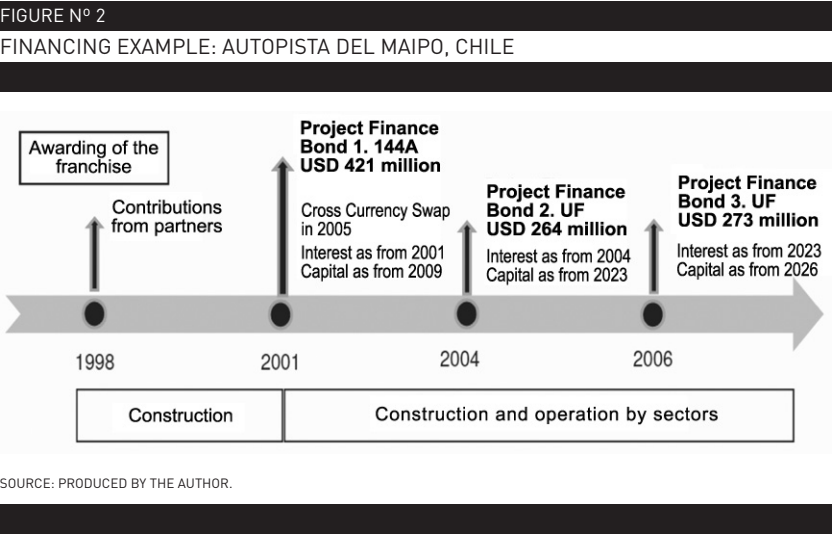
SOURCE: PRODUCED BY THE AUTHOR

- (v) State subsidies. In some Chilean franchises where the franchise ceases to be profitable for the private sector at a certain maximum price-rate, there exists the possibility of a subsidy payment by the MOP for reasons of public interest. Unlike the case of the IMGs, this subsidy is for a known amount stated in the conditions of the tendering process, according to a table that fixes annual payments expressed in *Unidades de Fomento* (UF)<sup>3</sup>. The payment of the subsidy on the part of the State is “come what may”, as long as the franchise lasts.

### Example of financing for a Chilean highway project: Autopista del Maipo

This project has been financed with bond issues (Project Finance) since 2001 (see Figure N° 2). Initially a 144A bond for a sum of USD 421 million was issued in the United States, because the Chilean market lacked the capacity to take such amounts. Today, however, an issue of that size can be placed in the Chilean market quite easily. Subsequently, follow-up bond issues took place, once the construction stage of the project was finished. The third bond, issued in 2006, has a capitalization of interest mechanism until 2023, and only in that year will interest begin to be paid. This is because the cash-flow of the project is growing, as happens in a road franchise where traffic grows at a rate of around 5% or 6% in real terms. With the MDI method being applied, the estimated deadline for the project is currently the year 2040 (the original deadline was 2024).

3 The UF is a monetary unit which varies daily to express the devaluation of the Chilean Peso, therefore, it is index-linked to inflation.



**Example of financing for a highway project in Colombia: Autopistas de la Montaña**

This is a highway project under construction. This project was negotiated directly with the government, making the most of the legal status of ISA (the fact that the government has 51% of the company’s share capital makes it possible for it to negotiate directly). As ISA is structuring the project from the start, what was done here was something different: an open-book mechanism was chosen, where everything will be entered transparently - investments and income -, the cash-flow will be calculated and on that free cash flow, ISA will be guaranteed an internal rate of return. The mechanism for adjustment is with the actual execution of the building work and with a deadline in the franchise.

This is going to be a different experience and will imply challenges in financing terms, but we hope to be capable of structuring things intelligently, given that if there is a guaranteed return, that should also be attractive for investors.

### III. Conclusion

In all parts of the world, the main investors in financial instruments related with infrastructure are institutional investors. Those who benefit most from instruments of this type are the pension funds and the insurance companies that are paying life annuities, which have to guarantee long-term pensions, because these instruments are normally backed by index-linked guaranteed incomes and produce sufficiently attractive yields for period of 30 years or more, and that allows those paying the pensions to achieve a suitable match between their investments and the pensions that they are going to pay.



# REFORMS NEEDED IN INVESTMENT REGULATIONS IN THE LIGHT OF THE EXPERIENCES LEFT BY THE FINANCIAL CRISIS

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The aim of this present article is to provide some insights on our experience of confronting the international crisis as pension managers in Peru, explaining the main problems that had to be contended with as a result of the characteristics of the market and of regulation. The document is arranged as follows: first comes an analysis of the impact of the recent financial crisis on the Peruvian pension funds; second, an account of the investment regulation reforms that need to be implemented as a result of the lessons learned from the financial crisis. Finally, the document ends with a few conclusions.

## **I. Impact of the crisis on the Peruvian pension funds**

As we all know, the recent great financial crisis in 2008 was a very deep one, both in its effect on financial markets and in the number of countries that were all in recession together. Furthermore, this crisis spread through both the developing and the emerging world, and this affected the pension funds, because of the system risk to which the investments in both fixed income and equities are exposed.

The Peruvian multi-funds were definitely affected by the financial crisis (see Figure N° 1). The aggressive fund (Fund type 3), which is allowed to have up to 80% of its investment in equities, suffered a fall of 28.8% in the period between August and December 2008, the worst point of the crisis, while the moderate fund (Fund type 2) fell by 13.5% and the conservative fund (Fund type 1), in which all those members over the age of 60 are legally obliged to be, fell just 3%, because it had only up to 10% invested in equities.

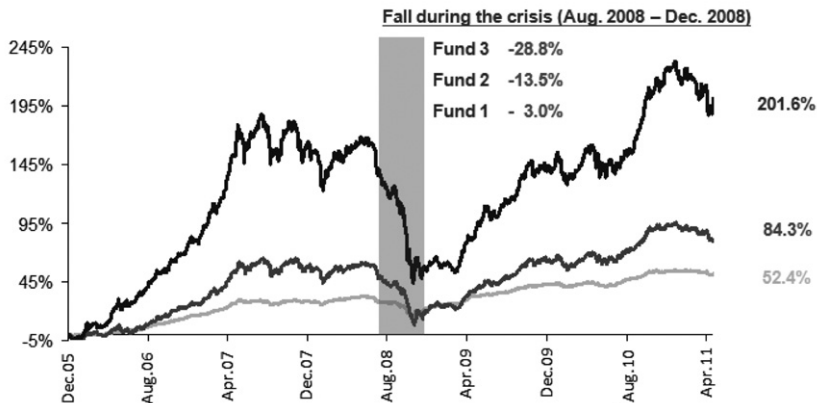
In Chile's case there was also quite a pronounced effect as a result of the crisis (see Figure N° 2). The most aggressive fund, A, which is allowed to invest up to 100% in equities, fell by 40.26% during the whole of 2008, while Fund E, the most conservative, which is allowed a share of up to 5% in equities, fell only 0.93%. In Colombia there was also a period of high volatility throughout 2008 as a result of the crisis and then the losses were recouped (see Figure N° 3).

In the history of the crises that have affected the Private Pension System (SPP) in Peru

(see Figure N° 4), the most outstanding was that of 1998, following the Asian crisis, a year when the meteorological phenomenon “El Niño” occurred, destroying most of the country’s agricultural output and causing the collapse of the whole transport system. Yield was seriously affected by this, and it is also worth emphasising that the limit on investment abroad in those years was quite restrictive. It was only towards the end of 2005 that a gradual increase took place, rising to the current level of 30%.

FIGURE N° 1

PERU: REAL ACCUMULATED YIELD OF THE PENSION FUNDS

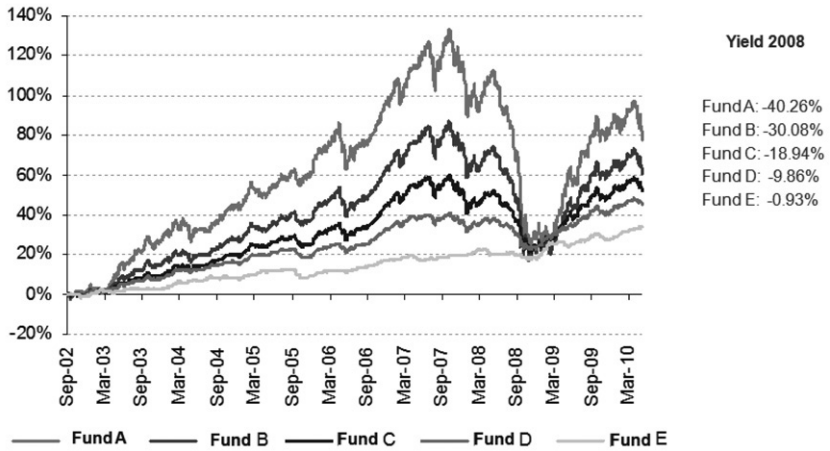


SOURCE: BLOOMBERG, SBS.

NOTE: ACCUMULATED YIELD FROM THE CREATION OF THE MULTI-FUNDS (DECEMBER 2005). PERIOD IMPACTED BY THE WORLD CRISIS: AUGUST 08 – DECEMBER 08.

FIGURE N° 2

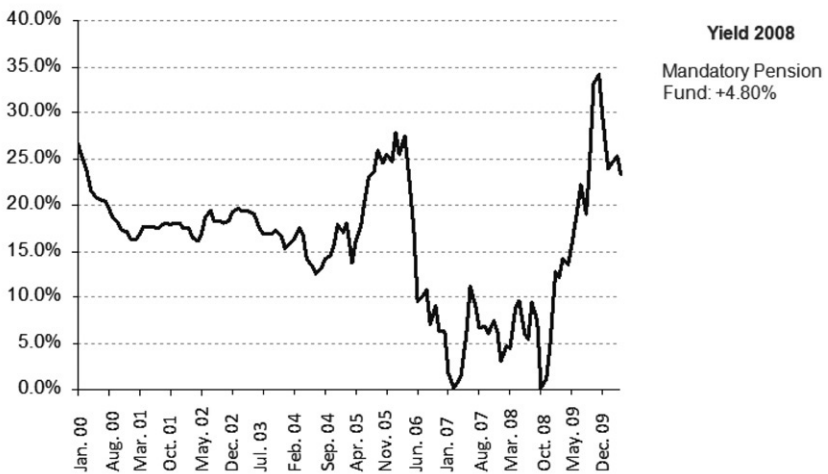
CHILE: REAL ACCUMULATED YIELD OF THE PENSION FUNDS



SOURCE: SVS.

FIGURE N° 3

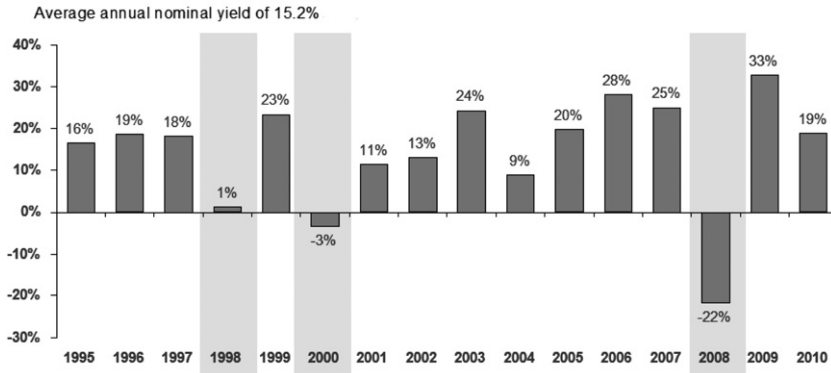
COLOMBIA: REAL ACCUMULATED YIELD OF THE PENSION FUNDS  
(JANUARY 2000 – MARCH 2010)



SOURCE: FINANCIAL SUPERINTENDENCE AND ASOFONDOS.

FIGURE N° 4

PERU: REAL ANNUAL YIELD OF THE PRIVATE PENSION SYSTEM (SPP)  
(FUND TYPE 2 OR MODERATE)



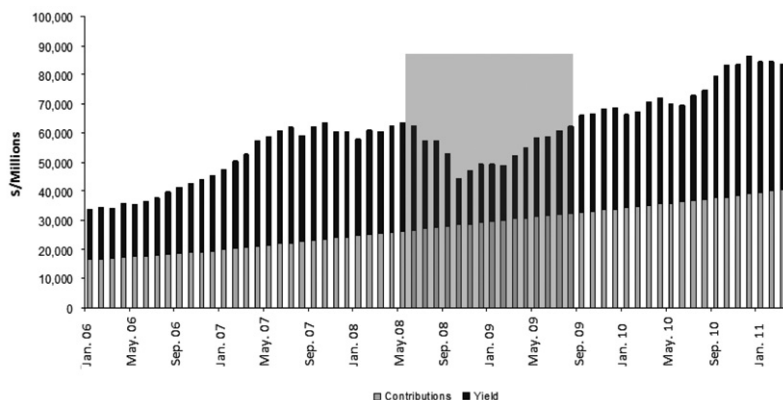
SOURCE: SBS.

It is worth underlining the fact that although the effect of the crisis on the value of the funds' investments in Peru was considerable, the average member would not have seen any effect on the level of his/her contributions, because the yield accumulated during the years since the SPP was set up formed a cushion within the contributions or capital paid in by each member (see Figure N° 5).

In Fund 1, the most important fund for purposes of this analysis because it includes the members who are about to retire and who, depending on their retirement scheme, might suffer the losses of that period, the losses were recouped in a period of 10 months; in Fund 2 this took 15 months, and in Fund 3, given the magnitude of the slump, it took a period of over 2 years (26 months) (see Figure N° 6). This was due more than anything to what happened to the Lima Stock Exchange, which was hard hit because of its exposure to poly-metal mining (60% of the index is represented by mining shares).

FIGURE N° 5

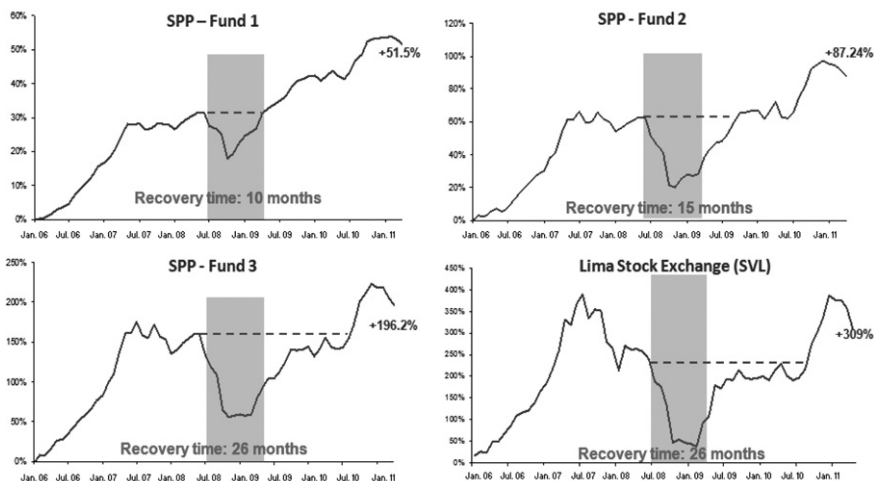
EFFECTS OF THE WORLD CRISIS: CONTRIBUTIONS PAID WERE NOT COMPROMISED



SOURCE: SBS.  
NOTE: INFORMATION AS OF MARCH 2011.

FIGURE N° 6

RECOVERY OF LOSSES: IN THE CASE OF PERU



SOURCE: BLOOMBERG, SBS.  
NOTE: INFORMATION AS OF APRIL 2011.

## II. Reforms needed

In the light of these impacts, what are the main obstacles that we face as managers, from the exogenous point of view? We reckon that the reforms needed have to do with the following issues:

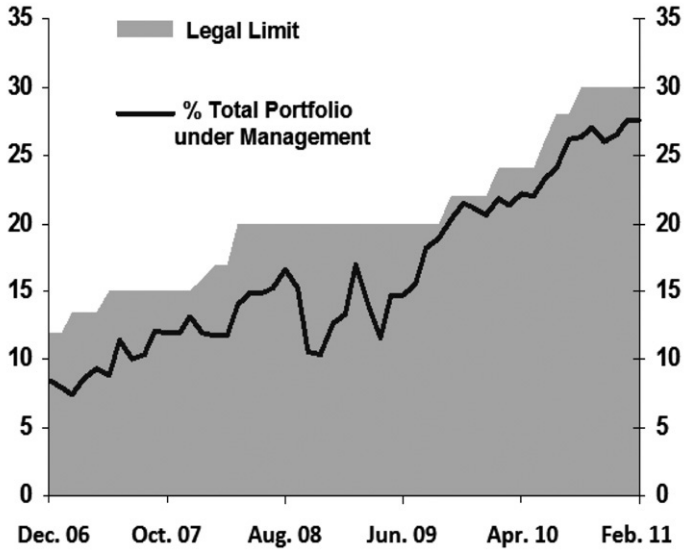
1. **To promote investment in derivative instruments.** Due to the flexibility and liquidity of derivative instruments, their use represents an indispensable tool in investment management, especially to restrict losses, because at the point of taking up an investment of this type, the maximum possible loss is known in advance. There is also flexibility at the time of designing the investment's risk-return profile and flexibility to re-balance or close the position in view of a change in circumstances. It is also worth highlighting the fact that centralised, organised negotiation mechanisms developed significantly in instruments of that type, as a result of the crisis and the credit risk that occurred in many investment banks. As a fundamental point in preserving value, the use of derivatives would allow the portfolio's risk profile to be optimised and also make it possible to exercise effective control of implicit risks. They also provide post-trading responses that also make it possible to analyse the state of the market at any given moment of time. In the specific case of Peru:
  - Although the use of derivatives is approved, their use is not allowed for managing the portfolio efficiently. It is contemplated only for hedging purposes. However, this hedging can only be quite limited, with a delta or efficiency ratio between 80% and 125%, which makes the use of these instruments practically prohibitive, because the options' premiums are made extremely expensive.
  - Only specific hedging is allowed, in other words one cannot hedge a basket of assets within the portfolio. If one wishes to take up an interest-rates swap, one would have to close a swap for each one individually, which once again would make the structure very expensive.
  - The use of "proxy-hedges" or "crossed hedges" is not allowed, a very basic factor in the case of the Peruvian pension funds, in view of the fact that there is heavy exposure to mining companies, which in turn have exposure to underlying assets such as zinc or copper. This means having to be able to hedge or balance the risk within the exposure in copper or zinc, in order to be able to align the incentives better or improve the reimbursement of the pension funds.

2. **To promote liquidity in the local market.** In Peru the pension funds represent around 85% of all private funds, and 20% of stock market capitalization, which makes it very difficult to handle liquidity locally. They are significantly exposed to volatility or the developments of the local stock exchange and highly exposed to cyclical sectors such as mining and hydrocarbons. In view of that, the project of having an ETF (*Exchange Traded Fund*) was developed in Peru, to represent Peruvian securities. The AFPs, together with the regulators, invited tenders for the creation of the ETF, making a replica portfolio of the AFPs' local equities position, so that they would be the ones providing the instruments and it would become possible for these ETFs to be created. Initially these would be held by the AFPs in their portfolios. As interest in the ETF grows, the market should gradually gain liquidity. This has been quite a healthy, positive experience. Currently the Peruvian ETF (*MSCI All Peru Capped Index Fund*, EPU), which began to operate in July 2009, already has over USD 700 million in assets under management and constitutes a mechanism for generating liquidity in the local market. This means not only liquidity in specific shares, given the arbitrage that exists between the value of the ETF and the value of the basket as a whole, but also an alternative for the pension funds, enabling them to invest more abroad, liquidating local positions without significantly affecting the market.
3. **To encourage investment in liquid assets abroad.** This is quite a crucial point in management, which remains after the crisis following the contraction of liquidity and the counterpart risk that arose during that period. Investments abroad are seen as a source of liquidity, especially in view of the continual growth of the pension funds. Currently there is an approved limit of 30% for investment abroad (see Figure N° 7). However, an extension of that limit to 50% is already in process of approval in the Congress.

Historically the pension funds have been invested abroad almost to the upper limit as an alternative source of liquidity and a source of diversification. Due to the restriction on investments abroad, the outcome has been that the percentage invested in the main local companies is very high, creating quite a high risk for specific investments. So, for example, in the case of Luz del Sur, an electricity distribution company, 79% of the shares in circulation, apart from the controlling group, are in the hands of the AFPs, while in companies such as G&M, for example, the AFPs own 37% of the capital (see Table N° 1), something which is not healthy in the long term, in view of the quite substantial growth of the funds as a result of contributions and yield.

FIGURE N° 7

PERU: CHANGES IN THE AMOUNT INVESTED ABROAD AND THE LEGAL LIMIT  
(AS A PERCENTAGE OF THE FUND: DECEMBER 2006 TO FEBRUARY 2011)



SOURCE: BCRP, SBS, CONASEV.



TABLE N° 1

PERU: SPP's SHARE IN THE MAIN LOCAL ISSUERS

Company	Share Capitalization (S./million)	AFP %	AFP % Float
Luz del Sur	1,946	21%	79%
Enersur	3,899	27%	71%
Edegel	4,312	11%	67%
Cementos Lima C	3,248	20%	64%
Edelnor	2,350	10%	63%
Cementos Pacasmayo C	3,052	18%	56%
G&M	3,601	37%	55%
Intergroup	7,175	15%	55%
Continental	12,830	4%	54%
Relapasa	696	20%	42%
Milpo C	7,701	17%	41%
Ferreyros	1,916	34%	40%
Alicorp C	4,473	31%	38%
Volcán B	10,944	28%	36%
Credicorp	23,409	15%	22%
Buenaventura C	33,225	13%	19%
Atacocha B	1,376	14%	14%
Southern	94,945	1%	3%

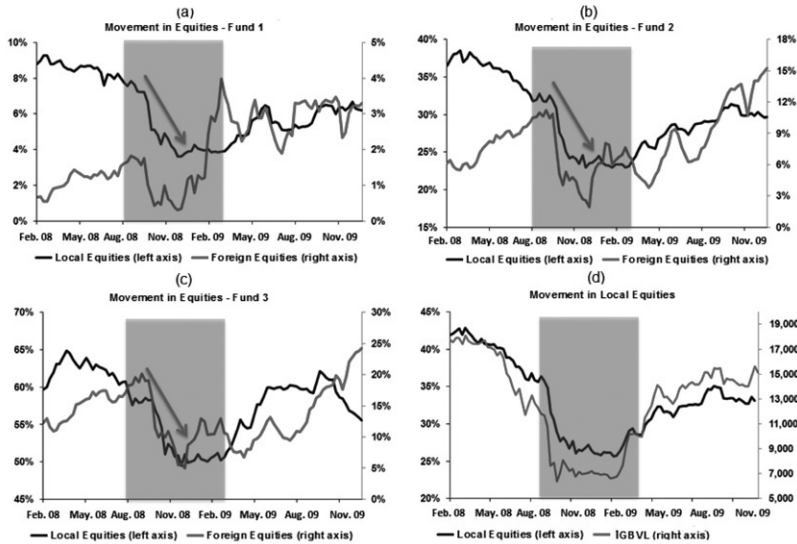
SOURCE: PRODUCED BY THE AUTHOR.

In Figure N° 8 (a), (b) and (c), it is possible to see how the amount invested by the pension funds in local Equities has evolved in Peru, compared with the movement of the General Index of the Lima Stock Exchange (IGBVL) (Figure N° 8 (d)). As may be seen, the growth of the pension funds bears a close relation to that of the IGBVL, showing that there was no space for active management. To put it another way, it was not possible to reduce the cash position of local equities because of low liquidity and lack of depth in the market.

In the local Fixed Income market, it is also possible to see a concentration of Pension Funds in the market of sovereign bonds, which are the most liquid in the market. The SPP holds around 43% of the total sovereign bonds issued. For terms of over 6 years, the pension funds' share is also quite significant.

FIGURE N° 8

## PERU: CHANGES IN THE COMPOSITION OF THE PENSION FUNDS IN LOCAL EQUITIES



SOURCE: SBS.

It is important that the limit on investment abroad should increase to provide the administrators with appropriate tools to diversify the investments. If this is not done, the result is an excessive concentration of the local market, which seriously affects the handling of liquidity and active management when confronting crisis scenarios such as those experienced in 2008.

As was already mentioned, in the case of Equities the concentration of the pension funds in local companies is very high. Furthermore, the total amount invested in the pension funds currently represents approximately USD 5,800 million, while the Lima Stock Exchange traded an average of USD 355 million per month during the year 2010. This would mean that selling 10% of the position of local equities (USD 580 million) would require approximately two months of trading (assuming that they are the only sellers) and this, in the case of a crisis, would considerably restrict the possibility of being able to react and put a stop loss on the investments in the short term.

The excessive concentration of the local market seriously affects the handling of liquidity and active management when confronting crisis scenarios such as those experienced in 2008.

This point has already been grasped by the regulators, as in Colombia and Chile, where the overseas limits have increased to 40% and 80% respectively. In fact, the most aggressive fund in Chile can invest up to 100% in foreign assets.

In Peru, around USD 1,500 million are received each year in new contributions alone. However, these new contributions find no investment destination in the local market, due to the fact that growth of new issues has been slow. In the year 2010, for example, the total amount issued in shares represented USD 120 million and the total amount issued in offered bonds was USD 490 million, which is insufficient for the annual growth rate of the pension funds.

4. **Change in the scheme for charging commissions.** Most of the commission structures of the world's pension funds are concentrated around a commission on contributions. Mexico recently changed to a commission on balance, which is the scheme that occurs most frequently in the countries of Central and Eastern Europe.

The current Peruvian scheme of commissions on flow or contributions fails to establish matched incentives between the AFPs and their members, since the yield and the administrators' income seem to be independent of one another. An alternative would be to introduce a commission on the balance under management, which would bring the interests of the administrator (to maximise its income) appropriately into line with those of the members (to produce higher yield). In this way the AFPs would also make themselves much more accepted politically in view of crisis processes and would concentrate competition around yield rather than on commissions.

### III. Conclusions

By way of conclusion, it may be said that the multi-funds and the various risk profiles offered by each fund provided members with appropriate tools to protect their capital during the crisis, in Peru and in the other countries that have implemented them.

As regards the tasks that lie ahead, first we must encourage more education on investment risks and investment management within the SPP. To do this, it is vital to enhance the system's image in the media and among the members.

Secondly, it is also extremely important to seek better mechanisms for aligning the incentives of the administrators and their members.

Thirdly, the development of the local capital markets needs to be nurtured, seeking to increase the frequency of trading and the availability of sophisticated instruments.

Fourthly, it is very important to foster investment in liquid assets, increase the percentage invested abroad and improve portfolio diversification.

Finally, it is necessary to register more centralised trading mechanisms and speed up the process of registering new instruments (i.e. the regulator's response capacity), and also limit exposure to market risks by providing the necessary hedging tools.



# PENSION SUPERVISORS' RESPONSES TO THE FINANCIAL CRISIS

ROSS JONES <sup>1</sup>

- <sup>1</sup> *Ross Jones is Deputy Chairman and Member of the Australian Prudential Regulation Authority (APRA). He is also the current President of the International Organisation of Pension Supervisors (IOPS) and Vice President of the OECD Working Party on Private Pensions.*

## Pensions and the crisis: policy prescriptions

There have been a number of changes to the way supervisors of pension funds take on their task after the financial crisis, but in terms of the regulatory environment we haven't seen much change. For example, in very few countries did the regulator, in response to the financial crisis say 'we need more power'. In fact, the major response of pension supervisors over the time of the financial crisis has been to remind people over and over that pensions are a long term proposition. In other words the focus is very much upon long term returns and that a fund member in a defined contributions fund might expect negative returns at certain times over the life of their membership in the fund.

However, the financial and economic crisis of recent years tested confidence in financial institutions in general.

While pension funds were neither the source of nor a mechanism propagating the crisis, they did not escape the general decline in confidence in financial services.

For example, there is evidence of a decrease in contributions to voluntary schemes in some countries as fund members lose confidence in the potential long run returns from their fund.

The investment losses of 2008 have yet to be made up. Of the US\$3.5 trillion decrease in the market value of pension assets in OECD countries, only around half had recovered two years later.

While pension funds have shown a good recovery from the worst of the crisis, it has varied considerably from country to country. Typically those countries where funds were heavily invested in equities did worse during the crisis, but staged heavier rallies post crisis. In Australia, with its mix of compulsory and voluntary, voluntary contributions remain below the pre crisis level.

Interestingly the proportions of equities and bonds in pension fund portfolios remained

relatively stable pre and post crisis. While the proportions varied considerably from country to country, it appears that the crisis had little impact on their longer term strategic allocations. Those countries which were high in equities pre crisis have tended to remain high in equities post crisis.

Some governments are contemplating moving away from private pensions as members suffered significant losses in the crisis.

However such a move generates new issues. Most countries can't afford to go back to pay-as-you-go (PAYG). For example in 2010, Italy was the second oldest OECD country (after Japan) with only 2.6 people of working age relative to the retirement age. Pensions take up 14% of GDP as compared to 7% of OECD average. In most countries, unemployment has increased, further increasing the burden of public expenditure. So while the public may be dissatisfied with their defined contributions pension balance, a reversion to the PAYG merely postpones the problems created by ageing populations and a smaller labour force as a proportion of pension dependents.

During the crisis some countries have increased flexibility in access to pension assets e.g. Iceland, Spain. Some countries have allowed employers to reduce payments into pension plans (e.g. USA, Romania, Lithuania). While this may be necessary in the short term, it merely makes the long term pension issues of adequacy more difficult.

There has also been work undertaken to look at ways in which defined contribution plans can be made less risky to fund members. For example compulsory or voluntary life cycling in default funds has been adopted or considered by some countries.

What some countries did during the crisis was in fact a temporary thing; they gave people early access to their retirement savings, and in some countries the employers were allowed to reduce their payments, so these were seen as short term temporary measures to alleviate the crisis. Unfortunately, all they do is postpone the crisis. Politically it may be very useful to say to members, "okay you can access your money, we recognise you are unemployed, recognise that there may be a risk you lose your home", but the true consequence of this is that if you allow people to have substantial early access, all you are really doing is postponing the problems for the future. In most cases the pension regulators have been pushing the line that you can understand from a political perspective that it may be of some use to provide early access, but it doesn't really solve the problem.

### **Quantitative rules vs. prudent person**

One thing that we have noticed, is that there has been a trend to deregulate. Bit by bit in most countries, most governments are moving away from highly quantitative



investment rules. The interesting thing about this is that during the crisis a number of countries slowed down the liberalisation but I'm not aware of any example where countries actually reversed the trend. What we found is that the global trend towards deregulation, and what we choose to call the prudent person rule, has evolved. That is, as you move away from quantitative investment rules, you rely upon the fund managers and allow them to get on with their job, subject to prudent person rules.

In a couple of developing countries, international diversification is being delayed but not abandoned. The other major element here is that there is a lot more emphasis on education. Chile changed the nature of investment options; in Pakistan investment options were changed to reflect volatility; in my own country, Australia, we are working on a principle to classify risk by getting an agreement with the industry. In Australia funds quite often use terms like balanced funds, growth funds and so on and members have no idea what the terms mean and, generally speaking, they don't have any consistency across different funds and so in numerous countries, regulators are trying to find a better way of describing risk and this comes back in part to greater emphasis on financial education.

### Improving protection in Defined Contribution (DC) systems

There has been a lot of emphasis in recent months in improving protection in DC systems. The greatest problem over the past couple of years has been those people closest to retirement who have seen their fund make substantial losses. One of the things we are seeing in many countries is governments looking at the way in which they can change DC systems to provide the greater degree of certainty that people need regarding their retirement income at the end of their working life. Now, quite clearly one simple solution to low balances at retirement is working longer. In many countries over the past few years the retirement age has been increased. In many other countries the age at which you can access your pension has been increased. Policies which may have inadvertently created incentives for early retirement are being reversed. At this stage, to talk about guarantees in DC is probably still very new, but in Europe in particular, there is work being developed on looking at the nature of providing a guarantee in a defined contribution system. You have two big questions of course: first, who is going to pay for the guarantee? If you simply say. Well, the government is going to provide a guarantee sometime in the future, it starts to sound a little bit like a pay-as-you-go system and you are right back to where you started. The other issue, of course, is what are you going to guarantee? Are you going to guarantee a real rate of return, are you going to guarantee a nominal rate of return or are you going to do nothing more than guarantee capital so that the only promise made is that in real or nominal terms, the sum that is put in is what a fund member is guaranteed on retirement?

There are many different options that are being considered at the moment and

governments are looking at ways in which they can provide members of DC funds with a little greater level of security. The consequence is that there is a lot of debate on the life cycle, and life cycle default funds are becoming more and more popular.

Life cycle default funds are gaining popularity, but are under more scrutiny:

- US funds are increasingly using life cycle as the default option.
- Following the crisis, regulators in Israel were required to mandate a more conservative system for investing older workers' pensions.
- Chile has introduced choice in the life cycle path (more or less aggressive).

The other area of reform coming out of the crisis has been improving risk management. There has been a much greater emphasis upon the nature of risk management and IOPS and the OECD have published Good Practices on Pension Funds' Risk Management Systems early this year. In particular, the focus is on the need for more robust risk management systems, the importance of management and board controls, much greater emphasis upon funding and solvency risk than existed prior to the crisis and a lot more examination by supervisors of investments risk, operational risk and, in many countries, the consequences of outsourcing.

Some authorities provided guidance to funds on what risk management systems they expect to be in place:

- EFSA in Estonia published advisory guidelines regarding risk management for pension fund managers.
- *IOPS Good Practices on Pension Funds' Risk Management Systems.*

While there are variations across countries, the process is designed to provide reasonable assurance regarding: effectiveness, efficiency and resilience of operations; reliability of financial reporting; and compliance with laws and regulations.

Specifically the good practices cover matters such as:

- The need for robust risk management systems.
- Management and board oversight and review of such systems.
- Funding and solvency risk control.
- Appropriate controls over investment risk, operational risk and outsourcing.

### Supervisory cooperation and structure

A major response to the crisis has been to improve supervisory cooperation and structure. What we have seen is a debate about what the best regulatory structure is.

This is probably, in my view, rather sterile debate. The UK and the US for example, are both spending a lot of time looking at what went wrong with their regulatory structure. They are looking at countries where things went right, two examples being Australia and Canada. In many circumstances it is not regulatory structure which is important but the application of the existing regulation. That is, the structure itself is not nearly as important as the way in which the rules and regulations are applied and they need to be applied consistently and logically. In many countries you have integrated prudential supervisors. In Australia for example, my organisation, the Australian Prudential Regulation Authority (APRA) regulates banks, insurance companies, pension funds, the whole lot. But in many countries you may have different regulatory structures. In some countries we see single industry regulators. But regardless of the structure, one thing that emerged was the need for a much closer working relationship between fund managers, pension fund supervisors, and the central banks. Consequently we have seen that some countries have been looking at different appropriate supervisory and corporation structures. The US has introduced a consumer protection agency, a couple of countries are moving to what is called the 'twin peaks' model (the UK and South Africa are both looking at this). However, most countries in the world are content with their regulatory structure. As I said before: I really don't think this is a particularly worthwhile debate. I think the emphasis really should be on improving the quality of supervision rather than what the relevant structure is. Structure is often less important than the way in which the rules are applied.

Given that the crisis highlighted the interconnection between financial institutions and sectors, one response was to step up coordination with other authorities:

- In Poland cooperation has intensified between the pension supervisor and other financial sector authorities.
- The FSC in Bulgaria holds communication and exchange of information with the relevant expert groups within the Ministry of Finance and the National Bank.
- The Pensions Regulator in the UK is working closely and in tandem with officials of all the major Government ministries and other regulators.
- CONSAR in Mexico have been in contact with legislators in order to explain that the main concerns raised by politicians are of a transitory nature and that it may not be advisable to overact with stiff policy measures.

### Supervisory communication

The other important and interesting development is that the crisis has made it very clear that consumers need to have a better understanding of the nature of private pension systems. There has been a substantial failure in confidence. And that failure in confidence is, to some degree, caused by a lack of information. It is often very difficult to

provide consumers with the appropriate levels of information. There has been a lot done in the past twelve months by supervisory authorities trying to look at communications strategies in terms of financial crisis. Interestingly enough, the major messages from most regulatory agencies was, for most people in their twenties and thirties and forties, that they will be able to ride out the financial crisis. For people in their fifties, it is a little bit different and that is why we are looking at life cycling guarantees and other approaches. But many countries have, in fact, started to look at approaches whereby the regulatory agencies spend more time looking at communication issues. In some circumstances, there have been direct approaches to consumers, in some circumstances there have been approaches to the pension funds. It depends more upon the environment in terms of which approach is a better one. And there are other issues regarding which is the best way to supply information. There is no doubt that there is a lot of information out there, in fact, there are some very good examples of television commercials that have actually been used in different agencies around the world and, if you are interested, they are posted on the IOPS website. Some of them are actually on Youtube, so they are really quite innovative and challenging. Media campaigns providing some basic information to consumers on what to do during the crisis have been used in a number of countries.

The role of rebuilding confidence in pension systems often falls to pension supervisory authorities.

In many countries pension supervisory authorities stepped up communication strategies around the time of the financial crisis with the goal of providing reassurance to investors and reminding members of pension funds that these investments are long-term and that reactive trading or switching between assets could have a detrimental effect.

- Macedonia: MAPAS (the pension supervisor) made a public media campaign explaining the situation as well as the effect on members of pension funds and the long term perspectives and nature of the pension system.
- Mexico: CONSAR (the pension supervisor) made an intensive media campaign explaining the differences between a permanent loss and a mark-to-market drop.
- Israel: an extensive advertising campaign (TV, dedicated internet site) launched in May 2009 in order to increase the public's involvement in long-term savings.
- Some authorities (e.g. in Spain) focused on ensuring that their own staff were sufficiently prepared to provide information.
- Other authorities (e.g. Hong Kong) used the crisis as a catalyst to build on existing communication and education programs.
- Other authorities (e.g. in the UK) worked with pension fund trustees or fiduciaries.

One of the most important messages from the crisis was “stay the course” i.e. don’t make rash and immediate decisions about long term retirement income without thinking through consequences. This applies to governments as well as individuals.

### Financial services guide

Finally, in my own country, we provide vast amounts of material on website in a very simple language so, just to run through very quickly: in Australia we don’t use the term pensions we use superannuation, so that is why we say in the overheads *I’m worried about my super*. They are very basic instructions on what to do and are meant to provide information to people who are very concerned. The interesting thing about this is that there is a surprisingly large number of people accessing this website, people who were approaching retirement and people who are particularly concerned about what was going on during the financial crisis. Many countries have the same types of information made available. Working with voluntary systems you do need to provide more information. So, it is either going to be provided by the government, it is going to be provided by the pension fund or it is going to be provided by the regulator. So these are the types of things that are being offered and under all of these headings, there is a lot of information about what you should do, even to your attitude to risk at the most conceptual level.

Here are examples from the website:

- Revisit your retirement plans
  - o You are not alone
  - o Get back to basics
  - o Revisit your attitude to risk
  - o Talk to your advisor
  - o When the numbers just don’t add up
- Review your super arrangements
  - o Pay close attention to statements and reports
  - o Talk to your fund or financial planner
  - o Should you switch investment options
  - o Should you switch funds
  - o Review transition to retirement arrangements
- Start to move forward
  - o Slow your transitional arrangements
  - o Keep working and retire later
  - o Boost your balance
  - o Adjust your expectations

- Avoid common traps
  - o Early access scams
  - o Selling at a loss
  - o Too good to be true
  - o Talk to your advisor
  - o When the numbers just don't add up

### **Final points**

The financial crisis has led pension supervisory agencies to place enhanced importance on the role of the fund managers and appropriate governance. Some countries have considered whether their regulatory structures are appropriate, but most have focused more on improving supervisory communication and enhanced prudential supervision. The deregulatory move from rules-based approaches to prudent person risk based approaches has slowed a little during the crisis but has not reversed.





# PART II

## ESTIMATED REPLACEMENT RATES IN THE INDIVIDUALLY-FUNDED PENSION SYSTEMS AND THEIR STABILITY IN THE PAY-OUT PHASE

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GONZALO EDWARDS AND CARLOS ANTONIO DÍAZ. Comparative analysis of the different existing pension modes.

EDUARDO FUENTES. Longevity risk in Latin America.

MICHAŁ RUTKOWSKI. Replacement rates and the adequacy of contributions in pension systems.





# COMPARATIVE ANALYSIS OF THE DIFFERENT EXISTING PENSION MODES<sup>1</sup>

GONZALO EDWARDS<sup>2</sup> AND CARLOS ANTONIO DÍAZ<sup>3</sup>

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- 2 Gonzalo Edwards has a degree in Business Administration and a Master's in Economics from the Catholic University of Chile; a Master of Arts degree in the Food Research Institute and a Doctorate in Systems Engineering and Economics from the University of Stanford, USA. He is currently on the staff of the Institute of Economics of the Catholic University of Chile, and was its Director from 1997 to 2009. He was also President of the Economics Society of Chile. Today he is Chairman of the Board of the Terrasur company and a director of the State Railway Company in Chile. He has written various articles in the area of pensions and carried out a number of consultancies in the area of insurance and pensions. In the pensions sphere, his academic publications have included matters such as the benefits of the pension system based on individual funding; retirement alternatives in the third age; and the relevance and consequences of longevity risk.
- 3 Carlos Antonio Díaz has a degree in Business Administration from the Catholic University of Chile and a Master of Arts degree in Economics from the University of California in Los Angeles, USA. He is currently on the staff of the Faculty of Economic and Entrepreneurial Studies at the University of the Andes in Chile, associate lecturer at the Institute of Economics at the Catholic University of Chile, Chairman of the Pension Consultative Council and a company director. He has written various articles on pension issues and carried out a number of consultancies in the area of insurance and pensions.

The aim of this present article is to analyse various pension options in Chile, arising from the possibility of having a variable component in life annuities and the need to find some way to cover the longevity risk in the Programmed Withdrawal option.

The article is structured as follows: in the first place, a description is given of the Life Annuity and Programmed Withdrawal options, to serve as a basis for the subsequent analysis of each of the options proposed. We then look into and propose designs for the Variable Life Annuity, Variable Life-time Pension and Temporary Income with Deferred Life Annuity options.

### 1. Traditional Pension Options: Immediate Life Annuity and Programmed Withdrawal

The Traditional Life Annuity (or Immediate Life Annuity) consists of a constant pension in real terms (Unidades de Fomento – UF)<sup>4</sup>, which is paid to the pensioner every month until he/she dies, and subsequently covers any legal beneficiaries of survivorship pension in accordance with the terms of the Law. The Immediate Life Annuity is purchased from a life insurance company. Under this option, the member loses the ownership of his/her funds on transferring them to the life insurance company, but the insurance company assumes 100% of the financial and longevity risk of the pensioner and his/her legal beneficiaries.

Under the Programmed Withdrawal option, on the other hand, the member receives a monthly pension, expressed in real terms (UF), which is charged to the balance in his/her individual funding account. The funds continue to be invested in a fund managed by an AFP and the pension is calculated annually on the basis of the characteristics of the pensioner and his/her legal survivorship pension beneficiaries (mainly their age and sex), the Mortality Tables published by the National Statistics Institute (INE), the assumed rate of yield for the years ahead (“Technical Interest Rate”) and the balance accumulated in the individual funding account.

4 The UF is a monetary unit which varies daily to express the devaluation of the Chilean Peso, therefore, it is index-linked to inflation.

Under this option the pensioner personally assumes the investment and longevity risk. In other words, if his/her old age or that of his/her widow(er) lasts longer than the average life expectancy, the pension fund would run out and he/she would end up receiving the basic solidarity pension<sup>5</sup>. The member retains the ownership of the balance in his/her individual account and if he/she dies without having any beneficiaries who are legally entitled to a survivorship pension, the balance becomes part of his/her estate.

The following Table N° 1 summarises the main features of the two options insofar as the assumption of risks is concerned.

TABLE N° 1

	Programmed Withdrawal	Traditional Life Annuity
Longevity risk	Not covered	Covered by insurance company
Investment risk	Not covered	Covered by insurance company
Inheritance	Balance in individual account	Only via guaranteed payment period
Pension stability	Decreasing pension if rate of yield is equal to the technical interest rate	Constant pension

SOURCE: PREPARED BY THE AUTHORS.

## 2. Variable Life Annuity

Since August 2004, Chilean law has allowed the life annuity to have a variable component. For this purpose the law imposes the restriction that it must have a fixed component in real terms that is equal to the basic solidarity pension, and that it must be expressed in a legally traded currency, in foreign currency or in an index associated with investment portfolios authorised by the Superintendence of Securities and Insurance.

In this paper, an analysis will only be made of the variable component in the variable life annuity option.

It should be noted that as yet there are no products in the market that include this option. Presented below are the main characteristics of our proposed design, produced in the context of a research project for the Chilean Insurers' Association. Many of the proposals are no doubt to be found in similar products around the world. The aim of the following is to incorporate those ideas in the Chilean mandatory social security system.

5 The Basic Solidarity Pension (PBS) is the benefit funded by the Chilean government which is accessible to people who are not entitled to a pension in any pension scheme, who belong to a family group in the poorest percentage of the population and who meet the requirements in terms of age, targeting and residence listed in Law 20,255.

In the first place, it is proposed that the pensioner should assume 100% of the investment risks and that the insurance company should assume the whole of the longevity risk. This means that the contract must be irreversible as far as the insurance company is concerned. The pension would be equal to a fixed number of units in one or more funds, with the pensioner being free to choose between different funds and able to change between the different funds over time. Each fund belonging to the company holds a balance (reserve) equal to the present value of the expected future commitments, discounted at the Assumed Rate of Return (ARR).

In the second place, it is proposed that the company invest only in the investment portfolios offered, in order to avoid the costs of mismatch between the investments offered and the investments carried out. It is also proposed to restrict investments to financial assets that are valued at market prices, such as mutual funds with fixed income and equities.

The value of the unit would be calculated daily, varying according to the yield of the fund relative to the ARR. This means that there would be an upward development in pensions if a ARR lower than the actual yield were used and downward if a higher ARR were used.

With regard to commissions, we propose a fixed commission on management and sales, to be deducted from the pension, and/or a percentage of the value of the fund. There would also be a one-off fixed or percentage commission for intermediation at the start. Finally, there would be a percentage commission for managing the portfolio, to be deducted from the yield of the fund.

With regard to the types of product, there is no reason why the same products should not exist as in traditional life annuities. So it is possible to have minimum guaranteed periods, higher percentages than the legal minimum for beneficiaries with legal entitlement to survivorship pensions, deferred pensions and early old-age pensions.

With regard to the funds in which the companies would be allowed to invest, it is proposed that no great restrictions should be imposed on the supply of funds, since, as was already mentioned, Variable Life Annuities have a mandatory fixed component in Chile.

Finally, it is worth mentioning that, since the insurance company absorbs the longevity risk, if pensioners die earlier than expected, the company would make a profit due to favourable mortality.

Table N° 2 compares the Variable Life Annuity option with the traditional Programmed Withdrawal and Traditional Life Annuity options.

TABLE N° 2

	<b>Programmed Withdrawal</b>	<b>Traditional Life Annuity</b>	<b>Variable Life Annuity</b>
<b>Longevity risk</b>	Not covered	Covered by insurance company	Covered by insurance company
<b>Investment risk</b>	Not covered	Covered by insurance company	Not covered
<b>Inheritance</b>	Balance in individual account	Only via guaranteed payment period	Only via guaranteed payment period
<b>Pension stability</b>	Decreasing pension if rate of yield equal to technical interest rate	Constant pension	Constant pension if rate of yield is equal to assumed rate of yield

SOURCE: PREPARED BY THE AUTHORS.

### 3. Variable Life-time Pension

This pension option is based on the CREF option of the TIAA-CREF system (Teachers Insurance and Annuity Association of America and College Retirement Equities Fund). This is a private system of occupational pensions in the United States, dedicated exclusively to non-profit-making institutions whose main corporate purpose is education and research.

Under this option, the pensioner assumes 100% of the investment risk, just as in the variable life annuity. On the other hand, the risk of individual longevity is covered by the group of pensioners who have chosen this option in the different funds of the same AFP, and the coverage can extend between all the funds of the AFP system that include this option. It is self-insurance in a group. The group of pensioners assumes the Mortality Table risk, which is not covered, in other words, the risk that “the group” does not coincide with the mortality table.

The pensioner cannot change AFP unless he/she opts for a system that includes a Mutual Mortality Insurance at the level of all the AFPs. The pensioner loses the ownership of his/her fund, because this becomes the property of the group of people under this pension option.

It is obvious that large numbers are needed in order for the system to work, in order to diversify the individual longevity risk.

In this case, the calculation of the pensions is based on the mortality table, the expected or assumed yield for the fund's assets, the age of the contributors at the point of calculating the pensions and the amount of the single premium.

The pensions are expressed in terms of annual payment units (AU), which are fixed at the moment of taking out the pension option, and their number does not vary during the pensioner's lifetime.

The Value of the Annual Payment Unit (VAU) may change due to:

- Investment Yield that differs from the Assumed Rate of Return (ARR).
- Mortality other than that expected according to the table.
- Changes in the Mortality Table.
- Changes in the ARR.

A unique feature of this option is that it requires no risk assets; neither does it produce technical reserves for longevity risk or investment risk.

When new pensioners enter the scheme, their initial pension is calculated according to their age and the amount of their single premium. That pension is expressed in Annual Payment Units, depending on the value of that unit at the point when the funds are transferred from their individual funding accounts.

Table N° 3 compares the Variable Life-time Pension (VLP) with the traditional Immediate Life Annuity (ILF) and Programmed Withdrawal (PW) options.

TABLE N° 3

COMPARISON OF VARIABLE LIFE-TIME PENSION, PROGRAMMED WITHDRAWAL AND IMMEDIATE LIFE ANNUITY (WITH AND WITHOUT GUARANTEED PAYMENT PERIOD)

Characteristics	PW	ILF with or without GPP	VLP with or without GPP
Management	AFP	Life Insurance Company	AFP
Possibility of changing pension option	Always	No	No
Ownership of funds	Member	Life Insurance Company	The group of people under this option*
Amount of pension	Variable	Constant	Variable
Who assumes the return on investment risk	Member	Life Insurance Company	Member
Who assumes the individual longevity risk	Member	Life Insurance Company	The group of people under this option*
Who assumes the mortality table risk	Member	Life Insurance Company	The group of people under this option*
Possibility of leaving inheritance (no legal beneficiaries)	Always	GPP: always Rest of period: No	GPP: always Rest of period: No
Risk of Administrator bankruptcy	No	Yes: with limited State guarantee	No

SOURCE: PREPARED BY THE AUTHORS.

NOTE: PW= PROGRAMMED WITHDRAWAL; ILF=IMMEDIATE LIFE ANNUITY; VLP=VARIABLE LIFE-TIME PENSION; GPP= GUARANTEED PAYMENT PERIOD.

\* THE GROUP OF PEOPLE IN THE VLP OPTION CAN EXIST AT THE LEVEL OF THE FUND, OF ALL THE FUNDS IN A SINGLE AFP OR AT THE LEVEL OF ALL THE FUNDS IN THE AFP SYSTEM.

### **Need to bring in new cohorts**

It is important to emphasize the need to bring new cohorts of people gradually into the group in order to avoid the volatility of pensions increasing over time. This need imposes a restriction in the sense that once a fund of Variable Life-time Pensions has been created, it cannot cease to function over time.

With regard to the mortality tables, it is proposed that these should be decided upon by the competent Authority. Currently there are only two Mortality Tables for pensioners under Programmed Withdrawal: Women and Men. However there are other heterogeneities that are not addressed when using two tables that differentiate only by gender.

This point is particularly important for this type of pension because Insurance Companies use more mortality tables, resulting in different rates of sale and amounts of pension, and can therefore differentiate between the various groups. In Programmed Withdrawal on the other hand there is no redistribution under this item because the funds belong to the pensioner. There is only inter-temporal redistribution for the same person. The situation would be different however if variable life-time pensions are involved, where there is a mutual mortality insurance between the pensioners.

### **Mutual mortality insurance between all the funds of the various AFPs**

If the choice is for a Mutual Mortality Insurance between all the investment funds of the various AFPs, there would be transfers of money between the various funds of the AFPs through a Clearing House. This system of compensation would allow pensioners not only to change fund, but also to change AFP.

### **Assumed Rate of Return (ARR)**

The proposal is that there be a single ARR for all the funds, and in the event of there being a change, this should be applied equally to all people in the funds (those already belonging and those entering).

## **4. Temporary Income with Deferred Life Annuity**

This option, which is present in Chilean legislation, has two components: a Temporary Income, which corresponds to the payment made by the AFP out of the balance left by the member or beneficiaries in the AFP account, and a Deferred Life Annuity, purchased from the Insurance Company with part of the balance.



In Chile the first Temporary Income (TI) can be equal to and up to double the Deferred Life Annuity (DLA) purchased. In other words, the ratio TI/DLA can be between 1 and 2.

The Temporary Income is calculated annually, assuming an expected return for the fund during the period that runs from the date of calculation or recalculation and the start of the Deferred Life Annuity. Its value will vary on the basis of the actual return of the fund and the assumed return.

Unlike Programmed Withdrawal, adjustments associated with life expectancies are not included in the calculation (Mortality Tables are not used in the calculation). In Temporary Income, the investment risk is retained by the member in the same way as the ownership of the fund.

#### **What happens at present with Temporary Income with Deferred Life Annuity?**

Of all the pensions paid in the month of August 2010, the number of Temporary Incomes represented only 1.1% (8,752 of a total of 788,819 pensions paid), Programmed Withdrawal 45.1% and Life Annuities 51.9%.

The deferral period of the DLA is extremely short, generally concentrated between 1 and 2 years.

The slight participation of this option forces one to look at the advantages and disadvantages from the side of the supply and that of the demand.

On the side of the demand, the advantages are:

- Preference for immediate liquidity. On retirement it is possible to opt for a Temporary Income that is up to twice the Deferred Life Annuity.
- It is possible to eliminate the individual longevity risk at an advanced age.
- With regard to the balance set aside for Temporary Income: ownership is retained, it can be left as inheritance, and it copes with the risk-return ratio of the fund in which it is invested.

The disadvantages are:

- Lack of understanding on the part of retiring members with regard to its characteristics, benefits and costs.
- Selection bias (people with a higher likelihood of living a long time are attracted by this product) which results in its being more costly, so people with lower life-expectancies find it expensive.

- Uncertainty associated with the Deferred Life Annuity at very long periods, where the first payment is received in many years' time (e.g. 10, 15 or 25 years after the date of retirement). The fact that there is no contact with the insurance company over a long period creates uncertainty.

On the side of the supply, it is possible to mention the following disadvantages:

- There is a low level of marketing effort on the part of the insurance companies, because the Immediate Life Annuity suits them better from the business point of view.
- The long Deferred Life Annuity is expensive due to the lack of long-term investment instruments.
- The long Deferred Life Annuity is also expensive because of the difficulty of predicting mortality over long periods.

Given below is a simulation of a man aged 65 without beneficiaries and with TI/ DLA=1. The results are shown in Table N° 4.

TABLE N° 4

PENSION AND CAPITAL FOR TI AND DLA

(RATIO TI/DLA = 1)

MAN AGED 65 WITHOUT BENEFICIARIES; 2,000 UF; IRLA = 3%

ARPF = 5%; TI-DLA AND ILA

<b>ILA (UF/month)</b>	12.01			
<b>N° of years to start of DLA</b>	5	10	15	20
<b>Temporary Income (UF/month)</b>	12.06	12.08	11.97	11.65
<b>Deferred Life Annuity (UF/month)</b>	12.06	12.08	11.97	11.65
<b>Capital today for TI UF</b>	643	1,149	1,531	1,789
<b>Capital today for DLA UF</b>	1,357	851	469	211
<b>Capital today for TI %</b>	32%	57%	77%	89%
<b>Capital today for DLA %</b>	68%	43%	23%	11%

SOURCE: PREPARED BY THE AUTHORS.

INITIAL CAPITAL UF 2,000; IRLA = ASSUMED INTEREST RATE FOR THE LIFE ANNUITY; ARPF = ASSUMED RATE OF RETURN FOR THE PENSION FUND.

## 5. Social Benefits Associated with the Temporary Income with Deferred Life Annuity Option

The Temporary Income with Deferred Life Annuity option has certain social benefits compared with other alternatives.

This is so because, being invested in the fund of the AFP itself, the Temporary Income pension is more stable over time than the Programmed Withdrawal, since it is not corrected by Mortality Tables. If, at one extreme, someone were to invest in Fund E (the most conservative) he/she would have practically the same pension during the whole period of the Temporary Income, which is not so with Programmed Withdrawal.

The above is valuable in terms of consumption stability and as an image of the Pension System (the falling profile of the Programmed Withdrawal is a complex subject to explain and understand).

From the social security point of view, the Temporary Income with Deferred Life Annuity is an excellent product, because it covers the risk of longevity in the long term. This is a matter of great social concern and in public policy issues. The case of the Programmed Withdrawal pension is quite different, because, depending on the initial balance and the yield, it could end up at the level of the Basic Solidarity Pension.

Throughout the whole Temporary Income period the person can leave an inheritance in case of death (the remaining balance). This is important because a high percentage of people believe that they will live less than the average and they are therefore reluctant to take a Life Annuity which they see as very expensive and “*they will keep the balance*”. This is solved to some extent by the Life Annuity with Guaranteed Payment Period, but that is more expensive.

To conclude, various published papers<sup>6</sup> recommend Temporary Income with Deferred Life Annuity as the best option from the social security point of view when the Deferred Life Annuity starts at an advanced age (e.g. at age 85).

6 See: Antolin, P. (2008) “Ageing and the payout phase of pensions, annuities and financial markets”, OECD Working Paper on Insurance and Private Pensions, N° 29; Antolin, P. (2008) “Policy Options for the Payout Phase”, OECD Working Paper on Insurance and Private Pensions, N1 25; Gong G. and Webb, A. (2007) “Evaluating the Advanced Life Deferred Annuity – An Annuity People Might Actually Buy”, Center for Retirement Research Working Papers, Boston College. Published in the journal: *Insurance: Mathematics and Economics*, Volume 46 (2010) Issue 1 (February)).

# LONGEVITY RISK IN LATIN AMERICA

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## I. Introduction

A question that is being asked daily by actuaries all over the world is: how long will a retired person need to receive a pension?, or, in other words: how much will human life expectancy increase in the future? The answer raises a large number of issues. At one extreme, in the words of Professor Dr Aubrey de Grey of Cambridge University, if the way to repair cell damage were to be discovered, human life expectancy could increase to up to 1000 years.

Although a situation such as that discussed by Dr Aubrey could exist, the probabilities of its occurring are not very high. However, one thing is certain: people's life expectancy has not stopped rising, especially in the last 60 years, and in the vast majority of cases, experts in demographics have underestimated these growth-levels in their forecasts. This gap may well widen, if the dramatic medical progress of the past few years continues, with higher standards of living and improvements in public health systems.

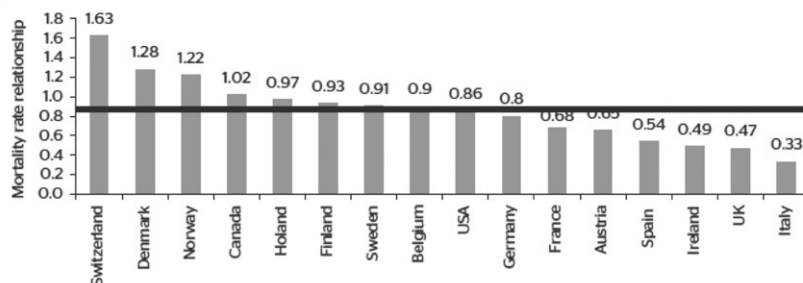
The implications of these changes differ, depending on the insurance sector involved. Life insurance will see its price-rates fall, because if people live longer, then claims payments will be postponed further into the future, while the price-rates of pension products will rise because they will have to be paid for a longer period of time.

From the point of view of pension products we shall be dealing with what is known as longevity risk, in other words, the risk associated with a situation in which the current actuarial value of the benefits to a person's credit is less than the current value needed to pay those benefits in the terms envisaged in the pension plan's rules. Depending on the type of retirement scheme (programmed, life-time or mixed) this risk will fall to a greater extent on the member, the insurance company or on both.

Longevity risk in the accumulation stage will depend on whether the contributions are adequate or not, and this comes down in the end to finding out whether the mortality tables as forecast are reasonably close to their real values in the future. The historic evidence shows us that mortality tables have been fairly conservative in many countries, as we can see in Graph N° 1.

GRAPH N° 1

Ratio of mortality rate considered by the industry in relation to that observed from the age of 65



SOURCE: BBVA RESEARCH.

The longevity risk to be seen in numerous developed countries that have the best information concerning mortality might also be seen, possibly magnified, in numerous Latin American countries where the problem of information is greater.

## II. Background on mortality tables in Latin America

Latin America has traditionally suffered from a chronic lack of up-to-date statistical information, including that concerning mortality. The use of mortality tables has often been based on experience seen in other, developed, countries and bringing it up to date has taken a very long time. The causes of this problem are to be found in the shortage of basic demographic information, unsatisfactory technical training and a lack of sensitivity on the part of the authorities to the risks associated with longevity risk.

At this point in time, Chile is the most advanced country in the region, because it has realised the importance of having mortality tables that are constantly being brought up to date. In the rest of Latin America there are still important deficiencies in the updating of mortality tables. As we shall be seeing below, even in the best of cases the corrections are of very recent date.

In Chile's case, the RV-85 mortality tables, which were established by circular N° 656, issued by the Superintendence of AFPs<sup>2</sup>, were in use until 2004. These tables were

2 For more details, see: <http://www.spensiones.cl/redirect/files/normativa/circulares/CAFP656.pdf>  
<http://www.safp.cl/safpstats/stats/files/normativa/circulares/CAFP1314.pdf> and also the press release: [http://www.svs.cl/comunicados/com\\_20041116-01.pdf](http://www.svs.cl/comunicados/com_20041116-01.pdf).

originally designed for the population of the United States, but were adapted for the Chilean population on the basis of information from the Social Insurance Service (SSS) and the insertion of population information from the Latin American and Caribbean Demographics Centre (CELADE), using the 1982 census.

However, from the year 2000 onwards, the RV-85 tables began to show signs of poor performance as input for estimating life expectancy. This deficiency caused the Superintendence of Pension Fund Administrators and the Superintendence of Securities and Insurance to draw up the RV-2004 mortality tables.

These new tables updated the calculation of programmed withdrawal benefits and life annuities, using data of old-age pensioners from the period 1995-2003, inclusive. Potential pensioners' longevity probabilities are determined in them by means of adjustment and graduation techniques.

The most noteworthy point is that the RV-2004 tables showed that the estimates of RV-85 were underestimating life expectancy. For example, life expectancy for women aged 60 increased by as much as 3.06 years. In the case of men the error was smaller: an underestimate of about 0.51 years.

Colombia has used the same mortality table since 1994 (RV89, based on the experience of the year 1989). In the year 2000 the Colombian Superintendence of Banking issued circular 071/2000<sup>3</sup> to the institutions, asking them to provide information on the mortality of active contributors, pensioners and the disabled, in order to produce tables that would reflect the current trend as far as mortality rates were concerned. As a result of analysing this data, it was realised that those tables needed to be updated and in the year 2010 resolution 1555/2010<sup>4</sup> was passed, replacing RV89 with the RV08 tables.

Just as in the Chilean case, the updating of tables in Colombia revealed that life expectancies were underestimated. The calculations with RV08 gave a life expectancy of 27 years for women at the age of 60, whereas the calculations of the National Administrative Department of Statistics (DANE) were around 22, a difference of 5 years. In the case of men the difference was less, amounting to 3.3 years.

Peru has used the Chilean RV85 tables since 1993 and it was only in 2006, 13 years later, that resolution 354/2006 approved the use of the modified Chilean RV-2004 mortality

3 For further details see circular 071/2000: <http://www.superfinanciera.gov.co/Normativa/PrincipalesPublicaciones/boletinminhda/2000/548-1000/ce071.rtf>

4 [http://www.superfinanciera.gov.co/NormativaFinanciera/Archivos/r1555\\_10.doc](http://www.superfinanciera.gov.co/NormativaFinanciera/Archivos/r1555_10.doc)

tables. More recently, resolution 17728/2010 made the use of the RV-2004 tables obligatory, these having been modified and adapted to Peruvian experience<sup>5</sup>.

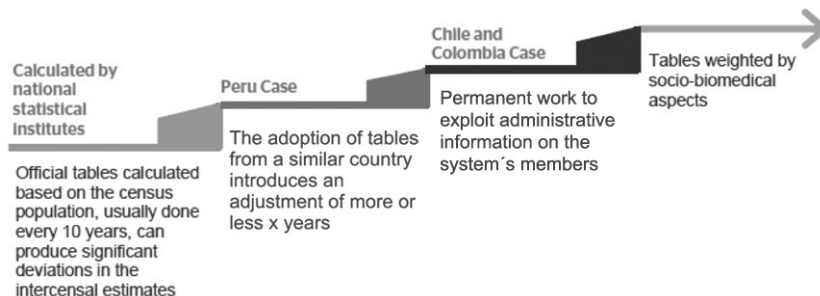
As we can see, life expectancy can be underestimated by as much as 5 years if inappropriate mortality tables are used. This is even more true if the adaptation made to other countries' mortality tables is not appropriate.

Other points to bear in mind when carrying out a regional analysis are:

- Each country uses different methods for calculating its mortality tables (See Graph N° 2).
- The official tables calculated with censuses of the population, usually taken every 10 years, may produce a considerable bias in estimates made between censuses.

GRAPH N° 2

#### Mortality Calculation Methods in Latin America



SOURCE: BBVA RESEARCH.

<sup>5</sup> For further details, see resolution:

<http://intranet1.sbs.gob.pe/IDXALL/SEGUROS/DOC/RESOLUCION/PDF/0309-1993.R.PDF>

<http://intranet1.sbs.gob.pe/IDXALL/SEGUROS/DOC/RESOLUCION/PDF/0354-2006.R.PDF>

<http://intranet1.sbs.gob.pe/IDXALL/SEGUROS/DOC/RESOLUCION/PDF/17728-2010.R.PDF>



### III. A review of current forecasting methods

The method traditionally used for carrying out mortality forecasts includes two main approaches. The first is based on a study of the ongoing trend in mortality over time, using econometric techniques. The second looks for comparisons with countries that present a more advanced development of mortality rates over time or chooses an objective mortality table, incorporating information about the factors that exert a significant influence on mortality and producing forecasts concerning its future development on the basis of the expected behaviour of those factors.

Alonso et al (2011) follow the method used by Alonso and Sosvilla (2007), estimating an econometric model that is closest to the historic trend, and then calculate the forecasts of the generational tables.

In synthesis, those authors try to answer the following questions:

- To which developed country is the Chilean mortality table similar?
- How will life expectancy grow in the developed country chosen?
- How will life expectancy in Chile converge towards that country?

They answer the first question “To which developed country is the Chilean mortality table similar?” using some non-parametric statistical tests of equal samples. The classic method for comparing mortality tables is that put forward by Forfar et al (1988). Those authors suggest some non-parametric contrast tests which compare:

- Signs test: We decide whether the level of mortality is sufficiently similar (from the statistical point of view).
- Sequence test: We decide the similarity of the form of the mortality tables
- $\chi^2$  (chi) test: We assess whether there is a similar pattern between the two distributions.

They answer the second question “How will life expectancy grow in the developed country chosen?” using the predictions of the ARMAX model. The ARMAX model is an extension of the Box-Jenkins autoregressive moving average model (ARMA because of its initials in English Autoregressive-Moving Average) which includes exogenous explanatory variables (X).

And we answer the third question, “How will life expectancy in Chile converge towards that country?”, in the next section.

#### IV. Results of applying the chosen method

Alonso et al (2011) compare the Chilean data with 20 countries and, after analysing 400 combinations, they find that:

- Chile's dynamic generational tables are equivalent to Austria –4 years in the case of men and to New Zealand –6 years in that of women (see Table N° 1).
- The generational tables of Austria and New Zealand are available as from 1948, allowing long-term forecasts to be made, whereas those of Chile are available as from 1992 ([www.mortality.org](http://www.mortality.org))

TABLE N° 1

NON-PARAMETRIC TESTS FOR IDENTIFYING SIMILARITIES AT AGE 65

Males / Austria	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Signs	1	1	1	0	0	1	1	1	1	1	1	1	1
Sequence	1	0	1	1	1	0	1	1	1	1	1	1	1
chi	1	1	1	1	1	1	1	1	1	1	1	1	1
Chile	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Females / New Zealand	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Signs	1	1	1	1	1	1	1	0	1	1	1	1	1
Sequence	1	1	1	1	1	1	0	1	1	1	0	1	1
chi	1	1	1	1	1	0	1	1	1	1	1	1	1
Chile	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006

1= Accept the null hypothesis of the equal sample

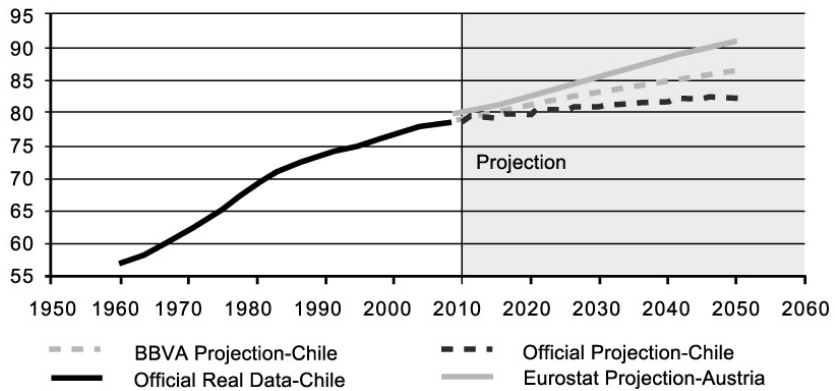
0= Reject the null hypothesis of the equal sample

SOURCE: BBVA RESEARCH.

Their forecasts based on the ARMAX model for specific ages offer us a life expectancy of 90.91 years in 2050, whereas Chile's INE forecasts a life expectancy at birth of 82.14 years (see Graph N° 3).

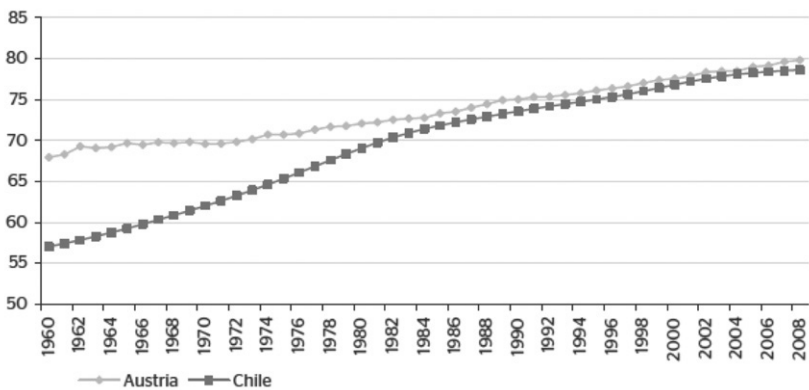
If we take the official estimates of the INE (82.14) and compare them with the Europop estimates for Austria (86.5), we notice that the life expectancies of Chile and Austria differ by about 4 years, contrary to what one would expect given the historic trend of these two countries (from 1985 onwards the differential has been relatively stable at a mean of about 1.6 years (see Graph N° 4).

GRAPH N° 3  
 LIFE EXPECTANCY PROJECTIONS AT AGE 65



SOURCE: BBVA RESEARCH AND INFORMATION FROM THE CHILEAN INE.

GRAPH N° 4  
 LIFE EXPECTANCY CONVERGENCE



SOURCE: WWW.MORTALITY.ORG.

## V. Economic impact of using inappropriate mortality tables

In the previous section we have seen that there are discrepancies in the predictions made by different institutions and, in the specific case of Austria and Chile, it is striking, to say the least, that the convergence of life expectancies seen in the two countries could be reversed over the next 40 years, due perhaps to differing methods of estimation. So we ought to ask ourselves who is right. The risks of giving the wrong answer to this question are very important for the pension industry.

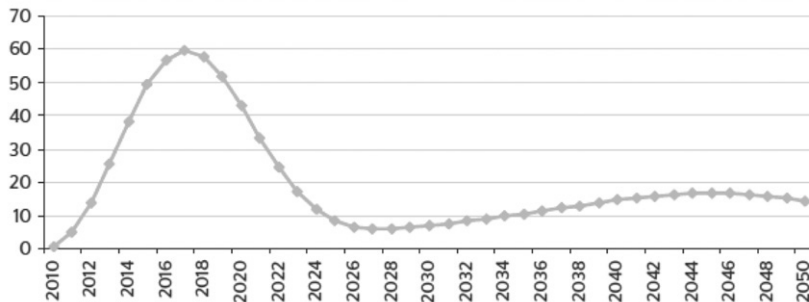
A simulation exercise shows us that a deviation of 1% in the mortality tables used to calculate life annuities would entail losses for the industry that could amount to 60 million dollars in 2017 (see Graph N° 5).

These losses will be due mainly to two important factors:

- The effect of the member's increased longevity.
- The effect of using an inappropriate price-rate.

GRAPH N° 5

**Simulation of systematic risk in the use of mortality tables in the case of an error of 1% in the Chilean mortality tables (in millions of dollars)**



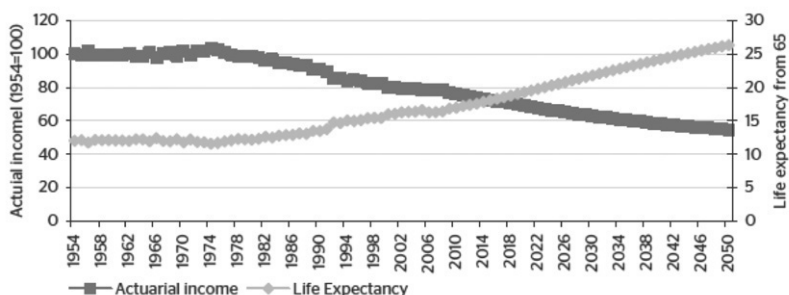
SOURCE: BBVA RESEARCH.

Furthermore, the increase in life expectancy could mean that members in many Latin American countries may not be paying enough contributions into their pension funds. An error in estimating that life expectancy could mean that members would have to spread their accumulated balances with a life annuity over a longer period of life, with the result that their disposable income would produce a reduction in their substitution rate and consequently in their standard of living.

If they do not pay in supplementary contributions, future generations may see their retirement pensions reduced by almost 50% due to the increase in life expectancy (see Graph N° 6).

GRAPH N° 6

#### Evolution in life expectancy and pensions for males

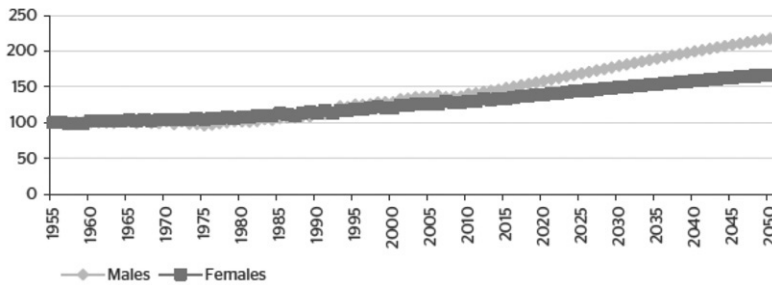


SOURCE: BBVA RESEARCH.

In another simulation exercise, we calculated what the contribution rate would have to be in Chile to maintain the current replacement rate (see Graph N° 7). That contribution rate would have to rise from current levels by 8 percentage points on average in the case of men and 4 percentage points for women. This difference in pattern by gender may be explained by the relatively greater increase that men would experience in terms of life expectancy compared with women (it is possible to see convergence by gender) and because men receive higher wages and must therefore accumulate a larger balance in order to maintain the replacement rate.

GRAPH N° 7

## Simulation of contribution rates necessary to maintain the current replacement rate



SOURCE: BBVA RESEARCH.

## VI. Conclusions and proposals for the industry

There are important unknowns with regard to how life expectancy in Latin America will evolve, and these could constitute a considerable risk both for the pension and insurance industry and for the members of the system themselves.

Currently there is insufficient information available to produce mortality tables that are of consistent quality and design in most Latin American countries.

This is a problem of society and its solution must come from the authorities and from the industry as a whole.

Specialised institutions should be created in the industry to optimise the calculation of mortality tables in Latin America and to acquire the statistical information necessary to do so. To achieve this we propose setting up the Actuarial Studies Commission (CEA-FIAP) as an institution that will bring together the best specialists in the sector so that, working independently, it can carry out the studies needed to create and maintain the best possible mortality tables and mitigate the possible associated longevity risks. This commission will be set up with the regulatory authorities, as a consultative-collaborating body, to advise and exchange information that is useful for the system.

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# REPLACEMENT RATES AND THE ADEQUACY OF CONTRIBUTIONS IN PENSION SYSTEMS

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We are observing one of the most important waves of social reforms of the late 20<sup>th</sup> and early 21<sup>st</sup> century: the wave of pension reforms. This paper is about replacement rates in pension systems and the adequacy of contributions. This is a very complex topic.

### Level of replacement rates

What is the right replacement rate? If one goes through the literature one will not find an answer to that question. One will see various arguments made, including an argument that the right replacement rate is 100 percent replacement rate, but one will also find arguments that it should be around half. In my opinion, the majority of commentators tend to agree either explicitly or implicitly that something around 70 to 80 percent is what the replacement rate should be.

There are three important aspects of replacement rate. The first is the issue of choice: one of the features of the wave of pension reform I referred to is that individuals have more choice, so it would be important for any individual who participates in a pension system to have a choice of replacement rate. But this choice of replacement rate can happen only if two important principles are adhered to: the principle of the choice of retirement age and the principle of actuariality. In that case an individual, by postponing retirement, can increase his or her replacement rate significantly and this creates a very important consequence: if the system is actuarial and the participants have a choice of retirement age, they do have a *de facto* choice of replacement rate.

The second issue is that of the minimum allowed replacement rate and it arises from considerations of minimum income and poverty. Most countries do have a concept of minimum pension and the sheer fact of getting a concept of minimum pension means that there is a minimum *de facto* allowed replacement rate.

The third issue is the need for annuitization. One can think meaningfully about replacement rates only in the context of pensions paid. Pensions mean annuities, so if instead of annuities we have a scheduled withdrawal option in the system, the principle of annuitization is not there and is very difficult to talk about replacement rate in a meaningful way.

## How to measure replacement rates?

It is very difficult to calculate replacement rates and there is a lot of confusion and a lot of misunderstanding. Why are they there? Where are they coming from?

The first issue is income. It is not entirely clear what income should be taken into account when calculating replacement rates: during active life should it be, just from work or also include asset income; and during the pension period should it be, just the pension or should it take other sources into account too?

The second is the time dimension: are we talking here about replacement rates as average salary during the working lifetime and the average annuity? Or are we taking two points: the last salary and the first pension? Again one will see in the literature that a lot of variation exists here, but it is very important always to keep those variations in mind, to be exact in the way we calculate because I found that the field of replacement rates is full of comparisons of apples and oranges due to the lack of proper care about what exactly is being calculated.

The third is the dimension of a research unit: are we here talking about individuals or families? How do we consider their income? How do we consider economies of scale in the family resulting from the fact that they live together?

The fourth dimension is the method. Replacement rates can be calculated from household survey. You can have empirical calculation based on a survey or a sample survey but they could also be calculated on the basis of administrative data.

The Organisation for Economic Co-operation and Development (OECD) does the best job in the world, with all the caveats above, when it comes to measuring replacement rates and I am planning to share with you some results of OECD pensions-at-a-glance for 2011. The data are shown for OECD countries and a few other major economies. I will just convey to you the key highlight results that tell you something about replacement rates in general and replacement rates of private pensions in particular.

## Gross replacement rates

- The gross replacement rate shows the level of pensions in retirement relative to earnings when working. For workers with average earnings, the gross replacement rate averages 57% in the 34 OECD countries. There is, however, a significant cross-country variation. At the bottom of the range, Ireland, Japan, Mexico, and the UK offer future replacement rates of less than 35% to people starting work today. Iceland and Greece, at the top of the range, offer replacement rates of more than 95%. Other countries with high projected replacement rates (between 70% and 90%) are Austria, Denmark, Luxembourg, the Netherlands and Spain.

## Private pensions

- Private pensions play a large and growing role in providing for old age. This is illustrated with gross pension replacement rates that have been separated out between public and private sectors. The OECD average for replacement rates of an average earner from public schemes alone is 42%, compared with 57% with mandatory private pensions included (an additional 15%). When voluntary private pensions, under typical rules, are added, the average replacement rate is 64% (an additional 22%) for an average earner.

## Net replacement rates

- The personal tax system plays an important role in old-age support. Pensioners often do not pay social security contributions. Personal income taxes are progressive and pension entitlements are usually lower than earnings before retirement, so the average tax rate on pension income is typically less than the tax rate on earned income. In addition, most income tax systems give preferential treatment either to pension incomes or to pensioners, by giving additional allowances or credits to older people.

## Private pensions (for net replacement rates)

- The OECD average for net replacement rates of an average earner from public schemes alone is 50%, compared with 68% with mandatory private pensions included. When voluntary private pensions, under typical rules, are added, the average net replacement rate is 77% for an average earner.

## A research unit

- Most of the indicators of pension entitlements in the report are based on analysis of a single person. In many countries, pension systems are effectively “individualized”: the position of married couples is the same as that of two single people with the same level of earnings. In others, however, marriage has an effect on pension entitlements.

## The 2008 crisis

- The financial and economic crisis of 2008 has meant that investment risk has been at the forefront of policy makers’ minds when thinking about pensions. Private pension funds in OECD countries lost 24% of their value on average, worth USD 5.4 trillion. However, it is important to bear in mind that private pensions are only a

part of the overall retirement-income package: a major part of retirement income is generally not affected by investment risk. In some countries, means-tested pensions protect low-income workers from much investment risk and the tax system can also act as an “automatic stabilizer” of retirement incomes.

### Pension wealth

- Pension wealth measures the total value of the lifetime flow of retirement incomes. For average earners, pension wealth is 9.6 times annual earnings on average in OECD countries. The figure is higher for women – 11.1 times individual earnings – because of their longer life expectancy.

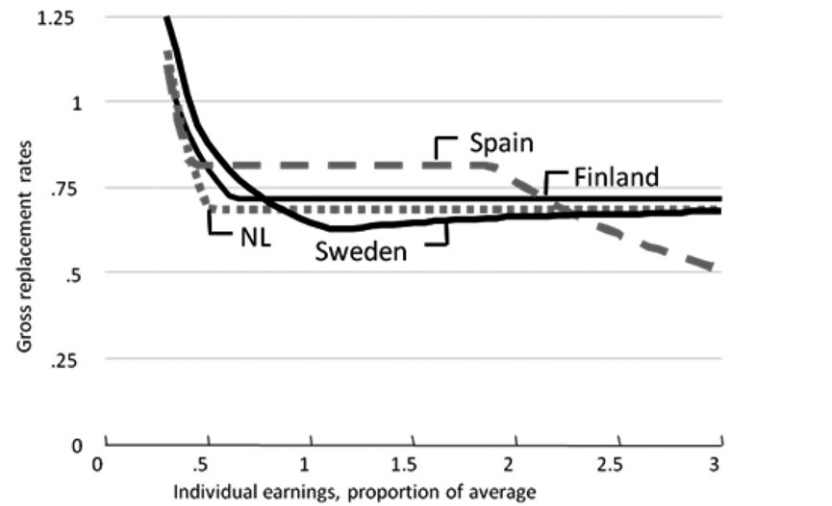
### Net pension wealth

- Net pension wealth, like the equivalent indicator in gross terms, shows the present value of the lifetime flow of pension benefits. But it also takes account of taxes and contributions paid on retirement incomes. For average earners, net pension wealth for OECD countries averages 8.2 times gross individual earnings for men and 9.6 for women. Values are higher for women than men, due mainly to differences in life expectancy between the sexes.

### The pension/earnings link: OECD and Latin America

I would like to focus on the pension-earnings link and what it looks like at the different income levels, because so far everything I have told you from the OECD analysis was for an average worker. Here you would see that a typical link between pension and earnings is L-shaped, meaning that those who earn less have higher replacement rates because they are protected, because the systems are explicitly biased towards the poorest, like a traditional European Bismarckian system, or because there is a minimum pension that kicks in (see Figure N° 1).

FIGURE N° 1  
 THE PENSION/EARNINGS LINK: OECD

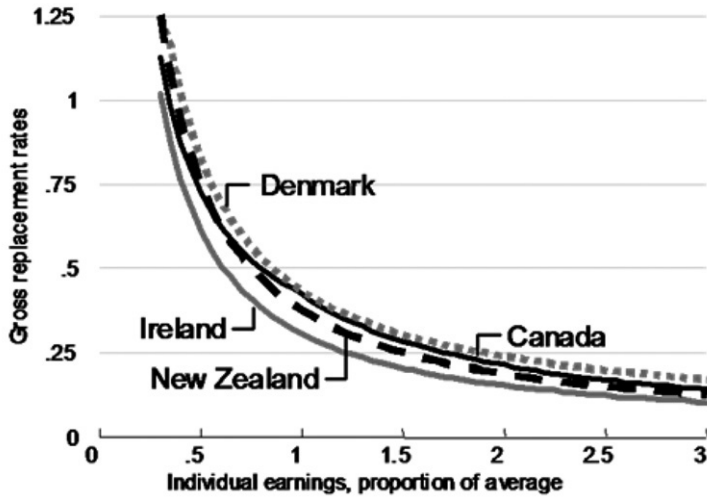


SOURCE: PREPARED BY THE AUTHOR.

In some economies there is an even stronger link: not really L-shaped but concave, because here the replacement rate goes down for high income workers (See Figure N° 2).

FIGURE N° 2

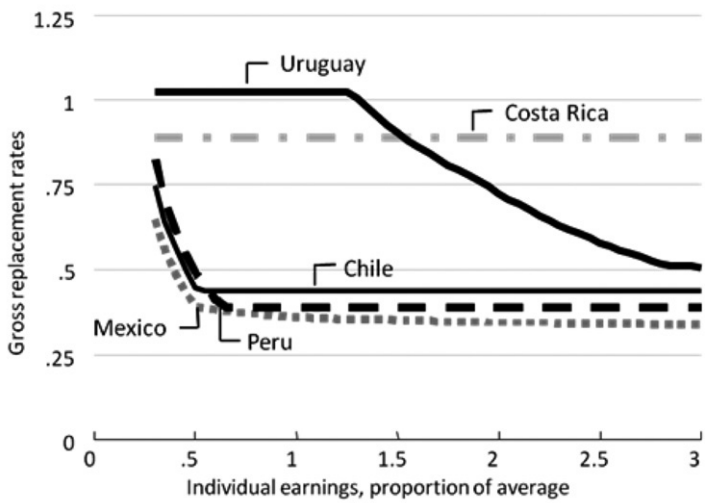
THE PENSION/EARNINGS LINK: OECD



SOURCE: PREPARED BY THE AUTHOR.

For Latin America; you also see an L-shaped curve. Uruguay is an exception here, giving very high replacement rates, even to high income earners (see Figure N° 3).

FIGURE N° 3  
THE PENSION/EARNINGS LINK: LATIN AMERICA



SOURCE: PREPARED BY THE AUTHOR.

## Conclusions

I have seven conclusions for my paper:

- Public-private mix is needed to ensure proper replacement rates.
- Aiming at an overall 70-80% replacement rate seems sensible in order to maintain the standard of living.
- Differentiation (sameness) of public replacement rates for different income groups needs to be linked to different (same) abilities to participate in the private pension market.
- The impact of taxation on replacement rates is convoluted and requires further research, as typically tax policies and pension policies are decided separately.
- Mandatory funded pension schemes played a major role in elevating replacement rates for all income groups.
- It is important to see the role of private pensions as contributing also to the equity of outcomes.
- The target public-private mix should go up from the current 42%-22% (64%) towards 40%-40% (80%).







# PART III

## EXPLICIT AND IMPLICIT DEBT IN THE PENSION SYSTEMS

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GÁBOR BORZA. How the treatment of fiscal debt and deficit affects on the creation, development and consolidation of the individually-funded pension systems: outlook of the administrators.

BENEDICT CLEMENTS. Assessing pension reforms and implicit pension debt: the need for neutral fiscal indicators.

KRZYSZTOF PATER. Fiscal debts associated with pension systems in European Union policy.

JUAN YERMO. Unwinding pension reforms – An OECD perspective.



# HOW THE TREATMENT OF FISCAL DEBT AND DEFICIT AFFECTS ON THE CREATION, DEVELOPMENT AND CONSOLIDATION OF THE INDIVIDUALLY-FUNDED PENSION SYSTEMS: OUTLOOK OF THE ADMINISTRATORS

GÁBOR BORZA <sup>1</sup>

- <sup>1</sup> Gábor Borza has worked with ING since graduating in Economics from the University of Budapest, Hungary, in 1992. He had the opportunity of fulfilling various functions in the company, starting as an actuary. By development and product control, he reached the position of chief actuary at the leading company in the local life insurance market in 1996. Between 1999 and 2002 he worked in Amsterdam, Holland, at the corporate headquarters of the ING Group. In 2009 he was appointed Finance Manager (and board member) of ING Life Insurance and Pensions in Hungary, becoming Chairman of the Board of the ING pension fund and in that capacity representing ING Pensions for the whole world. Since 2002 he has been a member of the Hungarian Association of Pension Funds (Stabilitás), chaired the pension regulation committee of the Hungarian Society of Actuaries and since 2006 is a visiting professor teaching the Pension Insurance course for actuaries at Budapest University of Economics, Hungary, where he has been an honorary lecturer since 2009. As of 2011, he is also a member of the European Group of Occupational Pensions Supervision (EIOPA).

This article deals with the impact on the creation, development and consolidation of the individually-funded pension systems, caused by fiscal debt, and the method used to measure the deficit. An historical overview is given of how the individually-funded second pillar was introduced in the Central-European countries of the European Union (EU) and also its macroeconomic effect from the EU's point of view. Finally it gives an account of recent events that have occurred in the case of Hungary and Poland and, against that background, reaches a conclusion on the business model with a recommendation for a plan of action that calls for the revision of the definitions of the Stability and Growth Pact (also known as the "Maastricht criterion").

### **The need for a pension reform from the Central-European point of view in the mid-1990s**

In the mid-nineties, everyone in the Central European region felt the need to introduce some type of pension reform, due to the obvious demographic challenge that was emerging, which in fact had to do with a challenge at the level of unemployment. During the transition from a "directed" type of economy to a market economy, the unemployment rate (which was practically zero before 1990), began to increase drastically, meaning that the deficit of the pay-as-you-go system increased considerably despite increases in the contribution rate. In that period the World Bank enjoyed a great reputation in Hungary and the region as a whole and was putting forward many arguments about the need to set up a funded system. Many of these arguments have been debated since that time, but I am convinced that the argument concerning the advisability of internal diversification continues to be a valid one. Pensions would not depend solely on the local economy – in Hungary, for example, – but on the performance of other economies around the world. Some experts also dispute this point, basing themselves mainly on the availability of sufficient investment opportunities in the developing area, but this can not be a restriction for the smaller economies, such as those of Central Europe.

The Central European countries tended to be "good students", who wanted to meet the expectations of the international financial community and were just waiting to be

accepted into the EU. They simply welcomed any advice from abroad. That advice was not necessarily inappropriate, but it had not been reviewed and questioned at a professional level.

### **Implementation challenges**

So then, how was the whole system of funding implemented in the region?

First of all, the technical solution was a retail financial services approach, in the sense that it did not go along with the practices already existing in the other (western) European countries, which consisted of occupational pension fund systems. In this model, we assume that educated clients are capable of choosing between the various investment portfolios and between the various pension providers. This is the price of individual freedom, but naturally it is an assumption that is not entirely well-founded.

In second place, the whole system has relatively high distribution costs because each client had to be persuaded individually and all the activity involved in the change-over was also very expensive. Obviously the costs were the provider's responsibility, but in the end they were also passed on to their clients. In 2008 and 2009, with the eruption of the financial crisis, all the distributors in the financial services industry began to look at this market, because it was easy to switch members between funds and they did not have to sell life insurance or some other type of savings product that involved the need to attract new funds into the system. Switching did not cost the client anything,

In third place, there is the reason why this system was more expensive than expected. It must be pointed out the costs are not so very high compared with mutual funds, but it is fair to assume that they are much higher than they would have been if the regulations had not been changed, imposing administrative restrictions that forced the industry to create new functions almost every year.

### **Microeconomic consequences**

The way in which the system was implemented in practice is the reason why the industry had a relatively high exposure to government bonds. In other words, if a forecast was made of how the new system would work in the future, it was only possible to forecast very low yields and, as a result, the system was unable to prove itself competitive, compared with the state pay-as-you-go system. This is particularly true if the relatively low yields were taken together with the relatively high costs. This latter is something that could and should have been solved by improving the efficiency of the industry, but in any case it was only possible to offer one investment portfolio and that was one of the reasons why the funds held very few equities – approximately 15% to 20% up to 2008.

The second consequence was that, if the funds had very high exposure to government bonds, then it meant that internal diversification was not working and pensions were still dependent on the State, on the local economy alone and not on other economies. If this was the situation, was the system (and the expenses implied in it) really necessary at all?

### Additional (macroeconomic) consequences

The system had been implemented in such a way that the mandatory contributions paid into the pay-as-you-go system were reduced and the difference paid into the mandatory private pension funds. This meant an additional burden for the State, because it had to finance the difference. Obviously the money paid into the mandatory pension funds was not new money, but part of the sum of contributions paid into the state system. The result of this meant that the State was forced to some extent to behave more efficiently, and its budget position improved considerably. This was not a problem, just very strong pressure on the State.

The second issue has to do with the fact that Hungary and the rest of the countries in the region are attempting to join (or are already members) of the EU, where there are very strict rules on public finance. One of these rules consists in obliging Member States to aim for a fiscal deficit of no more than 3% of the GDP and a total (explicit) debt no greater than 60% of the GDP. These are important targets and if a Member State fails to meet them, it will face certain measures that will shortly be transformed into financial consequences.

The European Union Statistical Office (EUROSTAT) showed that it was prepared to accept the fact that a pension reform in process of implementation might be causing an extraordinary deficit. For this reason a temporary stay was announced: a transition period of 5 years in which the Member State could have a higher debt. This was obviously not a solution because a period of 5 years is too short. Those familiar with the nature of pensions know that a pension is a long-term business, meaning that a complete transition period takes something like 35 years, not 5, but this has not happened.

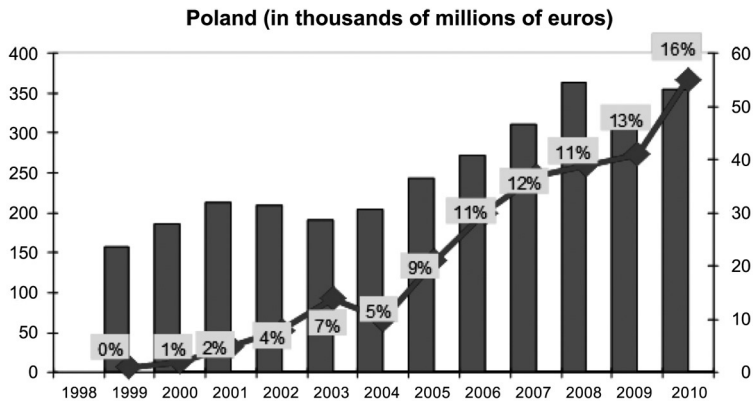
Given the circumstances, there was a very strong incentive throughout the region to stop the system, because the only benefits that are obtainable are long-term ones. On the other hand, if the system is stopped, the contribution is paid (back) to the State and the assets can also be returned to the State. It is not therefore possible to export what was started in Central Europe to the remaining European countries, to enable them to face up to the demographic challenges in a realistic way. We should not forget that this was a problem that arose long before the crisis but the pressure on the budget became much stronger during and after the crisis, so much so that some countries could not continue with the pension reform. On the basis of the UE measurements, they could not afford it.

To summarise, the situation was sustainable before the crisis, but after the crisis many countries – as a result of the unfair measurement standards of the UE – found an incentive to make use of pensions for solving their budget problems.

### Attractive targets

Graphs N° 1 and N° 2 show on their left axis the GDP in thousands of millions of Euros (in bars). On the right axis (in lines) are shown the total assets of the second pillar under management, while their weight as a percentage of the GDP is shown in the boxes.

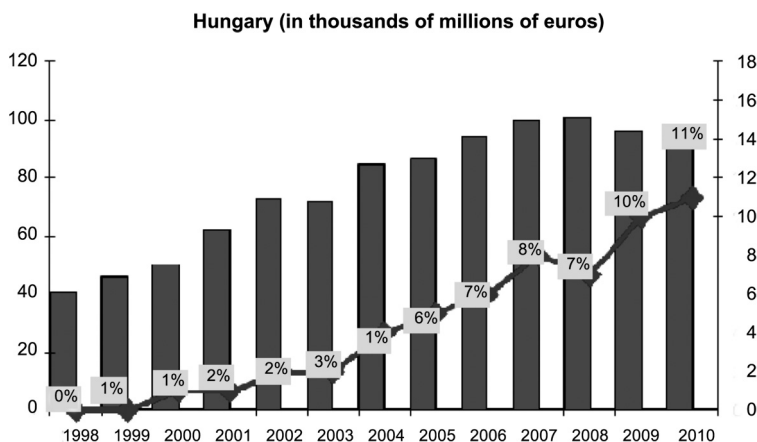
GRAPH N° 1



SOURCE: ELABORATED BY THE AUTHOR.



GRAPH N° 2



SOURCE: ELABORATED BY THE AUTHOR.

So, in Poland's case, it is possible to see that the assets under management in the second pillar represented approximately 16% of the GDP for 2010, while in the case of Hungary these represented almost 11% of the GDP. In other countries, such as Slovakia, Bulgaria and Romania, the assets amount to 6%, 5% and 0.8% of the GDP, respectively. These figures mean a lot of attention being paid on the part of Governments.

Just imagine a government saying "In fact I can take some money out and make great promises to my voters and offer tax exemptions, etc". Then the government might decide that the savings of the last 5, 10 or 15 years should be used all at once, and that constitutes a great challenge. It is very tempting, especially when facing an economic crisis. The longest steps were taken where the largest quantities of assets under management had been accumulated, as in Hungary and Poland, but there are also shorter steps waiting to be taken in other countries.

**So what type of measures did governments take, since not all individuals or governments like to make use of their explicit savings?**

In certain countries the contributions were initially very low, but there were promises that these would gradually be raised. This type of increase was postponed or suspended, or even eliminated altogether.

In the case of other countries, the contributions were eliminated temporarily or permanently, or suspended for a very long period.

The most persistent idea was to pull back part of the assets to the state pay-as-you-go system, because that would encourage people to move out of the funded system, transferring their assets to state control. This means that people lose their individual accounts but gain rights in the pay-as-you-go system. How can people be motivated to do something like that, when normally they have no desire to give up their personal accounts? Certainly the rules of the game must have been changed. For example, the state system was transformed to make it appear much more beneficial and sanctions were imposed to discredit the individually-funded systems. As a result, relying on financial incentives, many people decided to return to the state pay-as-you-go system. This was done in Slovakia a few years ago: before the euro was introduced, the government needed manoeuvring space in order to be able to persuade 5% of members to return to the state pay-as-you-go system.

All these are obviously short-term incentives. It is basically a question of having short-term solutions to even shorter-term problems with national budgets. Sometimes these problems are non-existent, they are merely problems of measurement, but the price of the solution is a drastic increase in future pension obligations, because governments have to make promises if they wish to make state systems attractive today and normally these are made now but have to be accounted for, or paid, at a much later date.

### **The larger the quantity of assets, the bigger the steps: the cases of Hungary and Poland**

In Hungary there were general elections in 2010 and the government made many promises during the campaign: it said that it would reduce taxes, that it would apply no restrictions and that it expected the EU to accept a larger deficit than the one negotiated with the previous government. The EU rejected this position, so what could the government do?

So-called extraordinary taxes were imposed by the government, meaning that banks, insurance companies, public utility companies and telecommunications companies had to pay large amounts of tax, all at once, for 3 years. However the government also wanted to use 14 months-worth of pension contributions, so they suspended pension contributions for just 14 months (until the end of 2011) and began a very intense publicity campaign against the private funds, accusing them of poor yield and unreliability. They wanted to give members an incentive to return to the state pay-as-you-go system, but surveys showed that almost nobody wished to switch voluntarily.

What happened was that the rules were then changed, so that those who wished to

remain in the individually-funded system had to go to the National Pensions Office and reconfirm their membership of the private, funded pillar. However, in order to discourage people from remaining in this pillar, the government ruled that those who wished to do so would still have to pay their contributions completely into the state system, even though they would accumulate no future pension rights in that system.

This meant that the government created a situation in which nobody had any incentive to remain in the individually-funded system, for purely economic reasons. The only reason why some people did stay is that they believed this to be really contrary to any Hungarian or international rule of law, and that the Hungarian constitutional tribunal or the European Court of Justice in Strasburg would rule this situation to be an illegal measure and oblige the government to re-establish state pension rights for this group of workers.

The final result is that, of the 3 million members of the individually-funded pillar, only 100,000 were left, in other words only 3%, and in terms of assets under management, only about 8% to 10% remained of what existed originally. We can see that those who remained correspond to people with higher incomes, who are awaiting the final decisions of the courts.

In Poland the situation was a little easier to bear. They already had a nominal ceiling for the asset management commission, which meant that there was a nominal level regardless of the growth of the total pension funds, and the commission on asset management was not fixed on base points, but on a nominal amount that could not exceed a certain level. Last of all, though no less important, was the fact that when Poland negotiated with the EU, it was able to use the Hungarian case as an example, “if you are not flexible with us, we shall do what the Hungarians did” and so they introduced a very severe cut in contributions, from 7.3% to 3.3%. However, in Poland’s case there was no major incentive to draw on the pension funds’ assets, because in both countries they have 3 types of asset: local equities, government bonds and international equities. In the case of government bonds, the major portion goes straight to the State treasury, which improves its position but does not produce cash funds for immediate use. In the case of the international equities that could be used, it was possible for these to be sold without influencing or destroying the local stock market, whereas local equities could not be sold easily. The Hungarian market was much smaller and its local exposure much less, so that was not a big problems in this country, but in Poland the local stock market is relatively inflated, meaning that if all those assets had been brought together and sold, the Polish stock market would have been destroyed. Things being as they were, Poland was in a better financial position on the one hand, but on the other it had far less possibility of obtaining results by switching assets to the State. It only needed the current flow with a reduction in future contributions.

## The business case before and after – a summary

To summarise: our view in the 1990s was that we had a retail-type asset-management business that would be permanent for the long term. We thought that it would be much better than the rest of the European countries, because the business was concerned with defined contributions (without longevity risk) and the players were able to capitalise the power of large-scale contribution, making it a very promising business scenario. Fifteen years later we reached the conclusion that we were experiencing unpredictable changes in terms of the volume and conditions of the business, due to people being allowed to come and go, and as providers we were sometimes having to provide unexpected guarantees because the government can rapidly change the rules and there is a very strong political risk that we cannot handle.

So, if we want to ensure the existence of a safe system, the task for all of us is to have an alternative stability and growth pact. This should be a task for the industry, but I understand that there are various international organizations working on the theoretical basis, so there are good possibilities of these modifications being accepted subsequently in the political arena, even though it will mean hard work.



# ASSESSING PENSION REFORMS AND IMPLICIT PENSION DEBT: THE NEED FOR NEUTRAL FISCAL INDICATORS

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Economists are thinking about how we should analyze the effects of pension reforms on the fiscal accounts, as well as how we should think about the effects of the reversals of pension reforms. Even more so after the financial crisis, at the IMF there are strong concerns about long term fiscal sustainability. Pensions are one of the most important long term fiscal promises of governments, and it is thus important to incorporate pension obligations in long term fiscal projections. It is also important to have fiscal indicators that incorporate the effects of changes in these long-term obligations.

In this article, after a few introductory words, I will discuss the concept of implicit pension debt—first just conceptually, and then looking at different approaches for assessing this quantitatively. I will then introduce a new measure, the “pension adjusted budget balance.”<sup>2</sup> This measure gives a better sense of how to correctly incorporate the effect of pension reforms into the fiscal accounts. Using this new measure will help avoid some of the pervasive incentives that countries face as they consider the effects of pension reforms or reversals on long-term fiscal sustainability.

## I. Introduction

Traditional budget deficit measures, which just look at the difference today between today’s revenue and today’s expenditures, do not do a good job of capturing the future obligations of the government. This weakness is evident when we look at the treatment of pension reforms. For example, pension reforms that do something to strengthen the public finances over the long term are not reflected in an improvement in today’s fiscal accounts. For example, a traditional pension reform, let’s say to increase the retirement age, will reduce pension spending 20 or 30 years from now. But it’s not going to show up in today’s deficit, even though it can be a very important reform in terms of long term sustainability. And the concern here then is that this does not provide the right

2 For more details on the pension-adjusted balance, see Mauricio Soto, Benedict Clements and Frank Eich, 2011, “A Fiscal Indicator for Assessing First and Second Pillar Pension Reforms,” IMF Staff Discussion Note SDN/11/09, available at <http://www.imf.org/external/pubs/ft/sdn/2011/sdn1109.pdf>.

incentives to policymakers to implement sound fiscal policy. These reforms will not change traditional budget indicators, such as the current period budget balance or the current level of explicit government debt. Using traditional budget indicators alone may also provide incentives to reverse reforms, such as moving contributions back from private systems to the public sector pillar. In this article, I will introduce an indicator that can measure the true long term sustainability of public finances more effectively and take pension reforms and pension reversals into account.

## II. Implicit pension debt

### Conceptual overview

Conceptually, pension obligations can be seen as a form of implicit government debt. One can view the future spending obligations of the government from pension promises as a stock of implicit debt. Contributors will retire sometime in the future and will generate additional pension spending. In most countries, because of the ageing of the population, pension spending in the future is going to be higher than it is today. Thus, the concern is that additional fiscal adjustment will have to take place to compensate for those future spending increases. So today's level of pension spending to GDP is not representative of what spending will be, say, 20 years from now.

The concept of implicit government debt is not limited to pensions. In fact, one of the things we've been emphasizing at the IMF is that health spending is really one of the biggest concerns for long term fiscal sustainability and also constitutes a large implicit debt. In the advanced economies, we project that pension spending is going to go up about one percentage point of GDP in the next 20 years; health spending, based on current policies, will go up 3 percentage points of GDP. That means that just standing still, in terms of the budget deficit, you would need combined measures on pensions and health of 4 percentage points of GDP—and that's not even taking into account the fiscal adjustment needed to offset the weakening of fiscal positions after the global crisis. So, there's a heavy task ahead in terms of fiscal adjustment, including offsetting spending increases in pensions and health. In assessing long-term sustainability, it is thus important to take these future obligations into account.

Implicit debt is important, but we need to recognize that explicit and implicit debts are different. Explicit debt is usually not financed on long run terms, and explicit government debt must be rolled over and refinanced. Implicit debt, on the other hand, does not have to be rolled over. The macroeconomic effects of explicit debt and implicit debt are not the same. Financial markets, for example, are going to react more strongly to increases in explicit debt than implicit debt.



## Alternative approaches

There are three measures that have been identified in literature. One approach is the “shut down” approach. Let’s say we close the pension system immediately today and have to estimate the value of those past obligations accumulated by government. This gives the value of implicit pension debt under this approach.

A second approach assesses the “closed group liability.” This measures all the obligations from past and future accruals of the systems to current members of the pension system, but not of future generations that might join the pension system.

The last approach, and I think the best one, quantifies the “open group liability”. This is the value of the obligations from past and future accruals if I keep the system the way it is, including new generations. The reason I think this is the better measure is that it effectively assumes that the system will keep going the way it is now and estimates what the fiscal costs are going to be if government policies remain unchanged.

Implicit debt should be measured in net present value terms. If pension policies will increase government deficits in the future, we have to find some way to value this in terms of today’s GDP. But deficits in the future are a smaller problem than deficits in the near future, so it is important to discount those future deficits to some extent.

The estimated size of the implicit debt is sensitive to the discount rate. In our paper we use a discount rate (defined as the difference between the real interest rate on government debt and the real rate of economic growth) of one percent. We have also used this differential in other long-term fiscal projections at the IMF.

Estimates of implicit debt are also sensitive to the time horizon. If the time horizon is too short (say 5 years), then you may not capture important demographic changes that are going to happen and change age-related spending. But if it’s very long, if you take infinite horizons, for example, these may not be of relevance to current policy makers. For our paper, we struck a compromise and estimated implicit debt accumulated through 2060. The European Commission has made long-term pension projections in many countries up to that year and thus data are available to compute this measure. Demographic projections are also available for many countries through 2060.

## III. Fiscal impact of pension reforms

In advanced economies, most pension reforms have focused on the first pillar and parametric reforms, such as raising the retirement age and reducing replacement rates in the future. In Eastern Europe, countries not only reformed the first pillar but introduced mandatory funded schemes, with a substantial fiscal impact. We can observe this by

examining what happened with pension reform in Eastern Europe on open group liabilities. In Bulgaria, for example, as a share of the 2007 GDP before the reforms, these liabilities were equal to 148 percentage points of the GDP.

The reform in Bulgaria reduced the generosity of the first pillar, which reduced implicit pension debt by 145 percent points of GDP. But it also introduced a second pillar that implied that contribution revenues were diverted from the first pillar to the second pillar. This increased implicit pension debt by 45 percentage points of GDP. When we take it as a package together, however, the reform reduced open group liabilities and implicit debt by 100 percentage points of GDP.

#### IV. Pension-adjusted budget balance

Let us move from the stock of implicit pension debt to our flow concept of the “pension adjusted balance.” In Bulgaria in 2007, the budget balance was 0.1 percentage points of the GDP. Pension reforms that introduced a second pillar had reduced contribution revenues and the pension system was in deficit. The non-pension balance, as a consequence, was stronger than the overall balance, with a surplus of 0.8 percentage points of the GDP.

So how do we go from the non-pension balance to the pension adjusted balance? We need to add the intertemporal pension balance, which takes the net present value of future pension balances, plus the non-pension balance of today. Let us give an example of how this translates in practice for Bulgaria. The intertemporal pension balance is -1.1 percent of GDP. The negative figure is consistent with the fact that there is still some implicit pension debt (48 percent of GDP) and there will be pension deficits in the future. The -1.1 figure represents the net present value, in annual terms, of these pension imbalances expected in the future. The adjusted pension balance is thus 0.7 percent of GDP (non-pension balance) minus 1.1 percent (intertemporal pension balance), for a figure of -0.4 percent of GDP. This is a better measure of the fiscal position, because it takes account of future developments in pension balances as well as today’s non-pension related balances.

#### V. Concluding remarks

To summarize, assessing the long term fiscal impact of public expenditure programs is essential for a proper analysis of fiscal sustainability. This means we cannot just look at today’s revenues and expenditures in the current period and current levels of public debt to assess fiscal sustainability. The pension-adjusted balance provides a better method to assess sustainability and correctly incorporates the effects of pension reforms, which often have important effects on fiscal balances over the longer term.

For fiscal analysis it is important to look at both pension adjusted balances and overall balances. Overall fiscal deficits are still important for measuring short term fiscal risks related to the financing of these deficits. Establishing ceilings for overall budget balances in the short and medium term is still justified.

The pension-adjusted deficit should be the preferred indicator for assessing the impact of pension reforms on the long-term fiscal position. This measure can be easily computed with the long term pension projections of IMF, as reported in the Fiscal Monitor. Long-term projections are also available in works by the European Commission, and the OECD has also made some pension projections available. In summary, the pension-adjusted deficit provides a new and useful indicator that policymakers can use to help assess fiscal sustainability and the effects of pension reforms on long-term public finances.

# FISCAL DEBTS ASSOCIATED WITH PENSION SYSTEMS IN EUROPEAN UNION POLICY

KRZYSZTOF PATER <sup>1</sup>

- <sup>1</sup> Krzysztof Pater from 2006 has been a member of the European Economic and Social Committee – the official EU advisory body representing European organised civil society. In 2008-2010 he was the President of the ECO Section (Section for Economic and Monetary Union and Economic and Social Cohesion) and now he is the Labour Market Observatory President. In November 2001 he was nominated as Undersecretary of State in the Polish Ministry of Labour and Social Policy. He was responsible, among others, for dealing with all social insurance problems, including the old age and disability pension system. Later, in May 2004, he was appointed as the Social Policy Minister in the Polish Government. In 2004 he put the Individual Retirement Accounts system, which is the so called third pillar part of the pension system, into Polish law.

### Stability and Growth Pact principles

Any discussion about European Union finances must begin with a brief introduction to the principles of the Stability and Growth Pact (SGP).

The SGP was adopted in 1997 in order to maintain and enforce fiscal discipline in the European Monetary Union. Currently there are 17 Member States which are covered by the Pact's rules and seven others, which will be covered in the future after joining the eurozone.

There are two basic criteria that Member States must respect:

- An annual budget deficit, understood as the sum of all public budgets, including municipalities, regions, etc., no higher than 3% of GDP.
- A national debt lower than 60% of GDP or approaching that value.

Since the SGP was adopted, some countries have run "excessive" deficits for some years, without incurring sanctions. In consequence, in March 2005, the EU Council relaxed the rules, based on the idea that policy errors had to be clearly distinguished from forecast errors. The ceilings of 3% for budget deficit and 60% for public debt were maintained, but from now on the decision to declare a country in excessive deficit can be based on certain parameters, such as the behaviour of the cyclically adjusted budget, the duration of the slow growth period, the impact of deep structural reforms.

When the world crisis appeared, having paid a high cost for the "Greek crisis" and facing the risk of major problems in Ireland, Portugal and some other EU countries, many European leaders realised that the procedures had to be tightened up - in both legal and practical terms.

In consequence, in March of 2011, the EU Finance Ministers agreed to a package of measures aimed at strengthening economic governance in the eurozone. It will kick

off negotiations with the European Parliament, with the aim of reaching an overall agreement in June 2011.

Some of these measures, if adopted, will change the principles of the SGP:

- An annual expenditure growth should not exceed a reference medium-term rate of GDP growth and a significant deviation from this benchmark could lead to sanctions;
- Member States whose debt exceeds 60% of GDP will be required to take steps to reduce their debt at a pre-defined pace; this pace would be considered as satisfactory if its distance from the 60% reference value had decreased over the previous three years at an annual rate of one twentieth;
- A new set of financial sanctions would be introduced for eurozone Member States. A non-interest-bearing deposit amounting to 0.2% of GDP may be imposed when the decision is made simply to subject a country to the excessive deficit procedure. If the Council's recommendation for correcting the deficit is not followed, a stepped up fine will be imposed – up to 0.5% of GDP;
- In order to trigger the sanction more automatically than at present, a "reverse majority rule" would be introduced; the Commission's proposal for sanctions would be adopted automatically unless rejected by the Council by a qualified majority in a short time.

The SGP has a crucial impact on the real European Union attitude towards pension reforms based on the mandatory funded pillar concept. However, I will begin by describing how the parameters identified in the Pact are measured.

### **Data provided by EUROSTAT – how multi-pillar systems are treated**

The key role is played by EUROSTAT (the European Union Statistical Office), working in close cooperation with national statistical offices. In order to provide data which is fully comparable across the Member States, the European System of Accounts (often abbreviated to ESA 95) is used. This system is consistent with the United Nations System of National Accounts (abbreviated to SNA), with some differences, being more in line with European Union practice.

Beyond ESA 95, the methodological framework for reporting data under the Excessive Debt Procedure comprises:

- The ESA 95 Manual on Government Deficit and Debt.

- Guidance notes published on issues not fully covered by the Manual.
- EUROSTAT decisions on specific topics.
- Bilateral advice from EUROSTAT to the Member States.

EUROSTAT plays a pivotal role in the Excessive Deficit Procedure by:

- Publishing the verified and, if necessary, amended data reported by the Member States.
- Preparing reports on the quality of the data reported by the Member States to the EU bodies.

In 1997 EUROSTAT was asked by the Swedish government, how the contributions directed to the funded part of the new Swedish pension system had to be classified. EUROSTAT's answer was short and clear – it should be classified as government expenditure and revenue. A few years later, when some Eastern European countries which were candidates to join the European Union implemented their pension reforms, the attitude of the European Commission and EUROSTAT was different.

On 2 March 2004, two months before the “great enlargement”, when eight Eastern European States joined the EU, EUROSTAT decided to add the new chapter to its Manual on ESA 95, explaining the methodology for classifying pension funds.

It was stated that the expression “mixed schemes”, which did not then exist under the ESA as these schemes were created after these standards were published, covers cases where a government unit is involved simultaneously in the management of two kinds of schemes, although in appearance there is a single flow of contributions on one hand (a total rate is paid), and on the other hand there is a single flow of pension benefits (each household receives only one regular payment). One scheme is unfunded, organised as a “pay-as-you-go” system, and the other scheme is a defined-contributions funded scheme.

According to EUROSTAT, as the pension benefits are not financed in the same way, the total flows must be treated differently in national accounts. The flows of contributions to the unit responsible for the management of the defined-contributions funded scheme and the flows of benefits from this unit are in no way part of government revenue or expenditure and this unit must be classified outside the general government sector.

In order to provide a certain flexibility in the implementation of EUROSTAT's decision, a three-year transition period was announced. Since then EUROSTAT has undertaken no further work on the problem of classification of pension funds. It seems that the status quo is accepted at least by the great majority of Member States.

## Stability and Growth Pact reforms – explicit debt

Up to 2005 the problem of the costs of pension reforms establishing a mandatory funded pillar was not recorded in EU documents. However, since the “great enlargement” of 2004, the Member States which implemented such reforms have called for discussion of the problem of the explicit debt occasioned by the reform. Therefore, when making changes to the rules of the Stability and Growth Pact in 2005, it was decided that:

- Structural reforms would be taken into account when defining the adjustment path to the medium-term objective or allowing a temporary deviation from this objective.
- Only major reforms with direct long-term cost-saving effects and a verifiable positive impact on the long-term sustainability of public finances would be taken into account.
- A detailed cost-benefit analysis of those reforms would need to be provided in the framework of the annual update of stability/convergence programmes.

In September 2010, when the European Commission submitted its proposal to amend the Excessive Deficit Procedure to make it more restrictive and automatic, the problem of the explicit debt was also mentioned – but not in a form acceptable to the Member States concerned. The Commission proposed that in the case of Member States where the excess deficit or debt criterion reflects the implementation of a multi-pillar system with a fully funded pillar, the Commission and the Council should also consider the cost of the reform. But the cost of the reform should be considered only if the deficit would remain close to 3% of GDP and for only five years from the date of the reform. Additionally, irrespective of the date of entry into force of the reform, its net cost as reflected in debt developments should be considered for a transitional period of five years from the date of entry into force of the proposed Regulation.

However, on 15 March 2011 when the package of rules was adopted by Finance Ministers, the proposal was changed, following requests from the countries, which have a mandatory funded pension pillar. It was decided that in the case of these countries, the Commission and the Council should consider the cost of the reform “when assessing developments of deficit figures in the excessive deficit procedure as long as the deficit does not significantly exceed a level that can be considered close to the reference value, and the debt ratio does not exceed the reference value, on condition that overall fiscal sustainability is maintained”.

In practice it means that instead of the five-year period stated in the initial proposal, the cost of the reform will be taken into account for an unlimited period of time, although nobody knows at the moment what size of deficit would be allowed.



It seems that the debate on how to consider explicit debt occasioned by pension reforms in Europe in the context of EU policy is almost closed.

### European Union bodies: towards implicit debt

A different situation prevails with regard to implicit debt.

As a result of the pressure from the Member States adversely affected by EUROSTAT's decision, the European Council, when imposing the changes to the Stability and Growth Pact in 2005, declared that: "Implicit liabilities (related to increasing expenditure in the light of ageing populations) should be taken into account, as soon as criteria and modalities for doing so are appropriately established and agreed by the Council. By the end of 2006, the Commission should report on progress achieved towards the methodology for completing the analysis by incorporating such implicit liabilities." However nothing concrete has been decided or even proposed since 2005.

During the revision of the worldwide System of National Accounts (SNA) from which the ESA principles are drawn, the recording of pensions was the subject of lively discussion. The results of these discussions, which are reflected in the revised SNA (SNA 2008) and will be carried through into the revised ESA 2010, are the following:

- The treatment of unfunded social security pension schemes remains unchanged and no liabilities will be recorded in the main national accounts.
- All countries will prepare and publish a "Supplementary" statistical table for pensions, showing the accrued-to-date pension obligations of all domestic pension schemes, including pay-as-you-go social security schemes, together with an actuarially-based reconciliation of changes in these obligations.

It is important to understand that "Maastricht Debt" for Excessive Debt Procedure purposes does not include liabilities relating to pension obligations. This means that ESA 2010, which, if adopted, should be effective from 2014, would not have a direct impact on debt measurement unless the definition of Maastricht Debt is changed.

In July 2010 the European Commission published the pivotal "Green Paper - towards adequate, sustainable and safe European pension systems". It was mentioned in this paper that "the monitoring of implicit liabilities could be strengthened to allow for a better assessment of the impact on the sustainability of public finances of pension schemes run by both public and private entities." The white paper following on from the green paper is expected for late 2011 and it will then be clear whether the European Commission will submit any concrete proposal, following this general declaration.

The European Economic and Social Committee, as the official EU advisory body representing EU organised civil society, stated in January 2011 in its opinion on the green paper that “the general level of pension system liabilities is fundamental” and that the current framework must be supplemented by monitoring and reporting on implicit pension liabilities. It was also stated that consideration must be given to revising Stability and Growth Pact rules to ensure that the outcome of reforms increasing explicit and reducing implicit liabilities are reflected properly. If this were done, reforms aimed at resolving long-term sustainability challenges would not be penalised in the short term, due to higher explicit public debt.



# UNWINDING PENSION REFORMS— AN OECD PERSPECTIVE

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The answer to the pension problem is relatively simple, unlikely though it may seem. In the Organisation for Economic Co-operation and Development (OECD), we have repeatedly reached the following conclusion, highlighted in the latest edition of “Pensions at a Glance”: the paradox of achieving pension sustainability on the one hand and adequate retirement income on the other can only be resolved if three types of reform are introduced. The first involves increasing the contribution periods, in other words, postponing the age of retirement to keep pace with the increase in life expectancy; the second, concentrating the public system more on basic social pensions aimed at alleviating and preventing poverty during retirement; and the third, developing private pension saving.

From the point of view of these three OECD criteria, the reversal of the structural pension system reforms which have taken place in some countries in Central and Eastern Europe (reduction of mandatory contributions to the private system, transfer of assets to the public system), meet none of these three objectives.

The aim of this present article is to explain the reasons that lie behind these initiatives, both from the fiscal point of view, as well as other aspects, focusing on the cases of Poland and Hungary, and also to make the OECD’s position clear with regard to the direction in which we need to advance in order to solve the pension problem.

### **Fiscal aspects of the “reform reversals” in pensions**

The fiscal effects of any pension reform are one of the greatest challenges in running the new pension systems correctly and insulating them from political pressure. Inevitably, fiscal considerations will continue to affect pension system design in the various countries in the region in the years to come.

The most obvious fiscal aspect has to do with the fiscal cost of the transition produced by the reform: there are fiscal gains in the future but these are offset by fiscal deficits that appear in the short and medium term. In some countries in Central and Eastern Europe these deficits have been magnified by the generous incentives that were introduced for

switching to the private system, in the sense that the reductions in the public pensions were not enough to offset the loss of income produced by transferring the contributions to the private pension system.

The second aspect affects the method of financing the cost of the transition. In some countries, and very specifically in Chile, the cost of the transition has been financed to a great extent by large fiscal surpluses, by a considerable fiscal preparation, even before the new system of individual funding was introduced. This has not generally been the case in Europe. Often the cost of the transition has been financed with new debt.

The third fiscal issue has to do with the fact that there is a clear problem in the treatment of fiscal deficits and debt, which has to be corrected. The International Monetary Fund's proposal concerning the creation of a new neutral fiscal indicator specific to pensions is an important step in this respect.

The last fiscal aspect, which it would be inadvisable to forget, is that the private pension systems themselves also represent a fiscal cost for the government. For instance, voluntary saving is often encouraged by fiscal incentives that may put a heavy burden on the public purse. Furthermore, these incentives do not always have the progressive aim and increased coverage that is claimed, or not at any rate on a large scale.

### **What can be done to correct fiscal rules and monitoring?**

The proposal to correct the measurement of debt and fiscal deficits, adjusting them by the effect of the structural reforms as suggested by the International Monetary Fund (IMF), seems both necessary and possible. However, it seems unlikely that this is something that will occur from one day to the next. This is quite a complicated issue, in which there are many differences within the heart of the European Union, and in other countries, with regard to how the effect of these reforms should or should not be entered in the accounts, and it is clear that countries that have not transferred part of their contributions from the public to the private system would be opposed to a very radical proposal that would incorporate the whole of that adjustment in the accounts.

Ultimately, statisticians need to work on improving the international system of national accounting to incorporate pensions and other implicit debt. The first steps have been taken, but the actual changes will only be seen in the medium term (revisions of this type tend to have a delay of four or five years).

In the short term, there are mainly two things to do: first, to improve the way public expenditure on pensions is presented and monitored, including the forecasts of that public expenditure and the calculations that have to be made, and are not yet being made, with regard to implicit debt. The second thing is to improve some of the existing

rules that fix ceilings for fiscal deficit or public debt, without taking the impact of the pension reforms into account.

In Europe, the effects of the reforms are already beginning to be considered in the Stability and Growth Pact (SGP), allowing greater flexibility in the application of the rules (fiscal deficit of 3% of GDP and public debt of 60% of GDP) for those countries that have reformed their pension systems in a structural way, like many countries of Central and Eastern Europe. However, the 2010 Commission's proposal (to allow the cost of the reform to be computed over five years) was insufficient to stop many countries in the region reducing the contributions to the private systems or, in the case of Hungary, practically shutting this system down by transferring the vast majority of the assets to the public system. The SGP has clearly played an important role in these decisions, since compliance with the fiscal rules imposed by this treaty is necessary for entering the Euro Zone, the great ambition of many countries in the region. In Poland, the government self-imposed a debt limit which is even stricter than that of the SGP: at the point when debt exceeds 55% of GDP, the government is obliged to cut back expenditure.

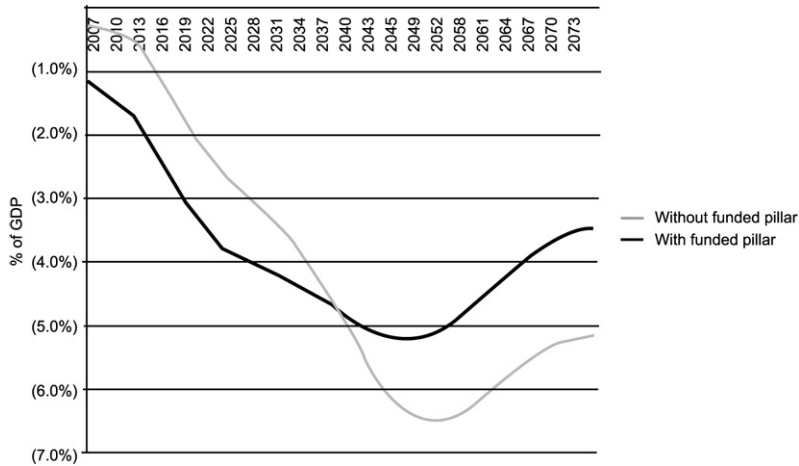
### The inter-temporal budget effect of a pension reform

Graph N° 1 highlights the trade-off that exists between the short and long term, by evaluating the budget impact of a structural reform of pension systems. The exercise illustrating this is a forecast from the World Bank for a stereotypical country in Central and Eastern Europe, on a time horizon that runs from 2007 to 2073.

Basically, the forecast shows that the fiscal gains from the pension reform based on individual funding only begin to emerge as from the year 2040. In present value terms, there is of course a clear net gain, because the present value of the future fiscal gains is considerably higher than the short-term fiscal losses. However, for a politician, the problem is always that of guiding the five or ten years following the introduction of the reform, in which a structural reform is bound to produce a fiscal problem that needs a solution.

GRAPH N° 1

## PROJECTED PENSION SYSTEM DEFICITS



SOURCE: PENSIONS IN CRISIS: EUROPE AND CENTRAL ASIA REGIONAL POLICY NOTE, WORLD BANK, NOVEMBER 12, 2009.

## Other determining factors in the reform reversals

It is also necessary to bear in mind that there are other factors which have influenced the decisions of the region's politicians when reducing the role of the individual funding pillar in the pension system.

First, the population has a very low level of financial literacy and a poor understanding of the pension system, with little awareness of the achievements conceived in the reforms and of the future pensions that can be expected from the new funded pension system. This has been a great problem, because politicians can easily take advantage of this generalized ignorance to justify changing the system once and for all and returning to the former one, using communications campaigns such as those used by the Hungarian government to reverse the reform that was introduced in 1998.

Secondly, the impact of the 2008 crisis undeniably took a heavy toll on the funded systems' reputation. In the OECD an attempt has been made to calm people's nerves since 2008 by publishing data on the long-term performance of these systems, but there is no doubt that public opinion about them plummeted with the crisis.



And thirdly, in these countries, the level of management commissions is relatively high, and politicians have also taken advantage of this fact to criticize the systems and implement counter-reforms.

### Reactions to the reform reversals

From the OECD's point of view, it is necessary to work on informing governments, to create a dialogue, in order to show them how these decisions may not be appropriate from the long-term fiscal point of view or for achieving adequate pensions. Governments are being asked to consider alternatives for improving their fiscal position, because that is often the main goal of reversing the reforms. The alternatives offered include cut-backs in general public spending, increasing taxes and parametric reforms to the existing pay-as-you-go scheme. In various countries, for example, there are special schemes for certain groups of workers that can be reformed. And in some countries it is still possible to raise retirement ages, because they are relatively low.

It has also been pointed out that these counter-reforms are bad for international public opinion, for foreign investment in these countries, and for confidence in the State's ability to manage a pension system for the long term. And of course it has also been said, and the OECD has repeated it in various recent publications, that these measures are counterproductive for the diversification of income sources during retirement.

### A tale of two cities: Budapest and Warsaw

It is important to underline the fact that there are differences in the pension systems of the various countries, so one should never generalise when reviewing what has been done and, of course, when commenting on the decisions of different governments.

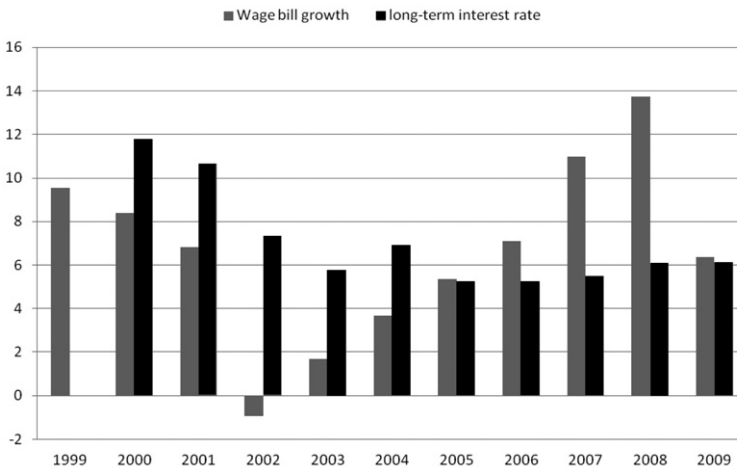
For example, there are considerable differences between the Polish and Hungarian pension systems which are worth emphasising. Poland has kept its individual funding pillar (with a reduced contribution) while Hungary has practically eliminated it. The public system in Poland is based on notional accounts<sup>2</sup>, meaning that the effect of life expectancy is already included in calculating the benefits. The public system itself is self-adjusting to the increase in life expectancy, while in Hungary the public pension system is still based on a defined benefit formula. Furthermore, the retirement age is higher for men in Poland (65 years) than in Hungary (62 years for men and women), and the Polish system is based on an indexing of benefits, 80% of which depends on prices and 20% on wages, which is less expensive than in Hungary, where pensions will be indexed according to the growth of the GDP in the new pension system.

- 2 *Notional accounts are virtual accounts where are collected the individual contributions from each contributor and the fictitious returns that these contributions generate throughout working life. The yields are calculated according to a "notional rate of return" which may be the GDP growth rate, the average wages growth rate and other variables.*

But even so, it must be borne in mind that the Polish system itself, although it has better prospects in terms of its fiscal and financial sustainability, may also bring problems in the future: if one compares the growth in the average wage (which determines the rate at which the government pays into the notional accounts) and the long-term interest rate at which the government finances itself (see Graph N° 2), one sees that from 2005 onwards, the latter is lower than the former. The notional accounts in Poland receive an interest rate which is linked to growth in wages, and the new public account which receives the 5% contribution (of the total 7.3%) that was formerly transferred to the private funds will receive an interest rate linked to the growth of the GDP, which has lately been higher than the growth in wages. In this way, the government itself is producing a new financing problem with this counter-reform by having to pay a higher rate of interest to the notional accounts in the public pension system than what it pays on the explicit sovereign debt.

GRAPH N° 2

POLAND: INTEREST RATE OF NOTIONAL ACCOUNTS AND PUBLIC DEBT



SOURCE: OECD.

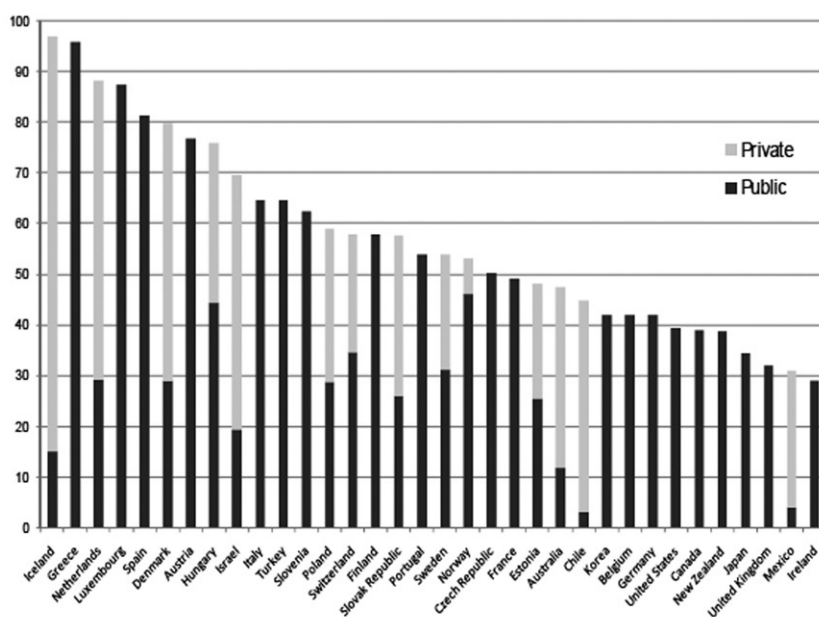
### Final comments

Despite the changes that are taking place in some European countries, the role of private pension systems will continue to increase, whether governments like it or not. There may be setbacks, but in the end, this is a necessary and inevitable trend.

In almost half the OECD countries (34 countries in all), there is a private system, either mandatory or quasi-mandatory<sup>3</sup>. In Graph N° 3 it is possible to see the gross replacement rates derived from the mandatory pension systems, both public and private, in the countries belonging to the OECD. These forecasts were made before the latest changes in Hungary and Poland took place. In these countries there has effectively been a reversal: the part corresponding to the replacement rate of the mandatory private system is going to be less in the future. However, in most countries, this private part, whether mandatory or voluntary, is going to continue increasing, albeit only gradually.

GRAPH N° 3

PROJECTED OECD GROSS REPLACEMENT RATES FROM MANDATORY PENSION SYSTEMS



SOURCE: PENSIONS AT A GLANCE 2011, OECD.

3 Quasi-mandatory means that at least 80% or 85% of the workers are covered by the system, either as a result of collective bargaining or a system of self-enrolment, or automatic enrolment in the private pension system. Some are individually funded, others have defined benefits, but they are funded systems.

To conclude, it is necessary to emphasise the need to produce reforms that in some way combine the aims of fiscal sustainability on the one hand and at the same time manage to focus public expenditure on pensions more effectively on those who are neediest, in other words, the poorest members of society (whether you call it the “Non-contributory pension pillar”, “Social or solidarity pensions” or “Pillar 0”). The crisis has made this need quite clear and there are also still countries that can make a lot of progress in this aspect.

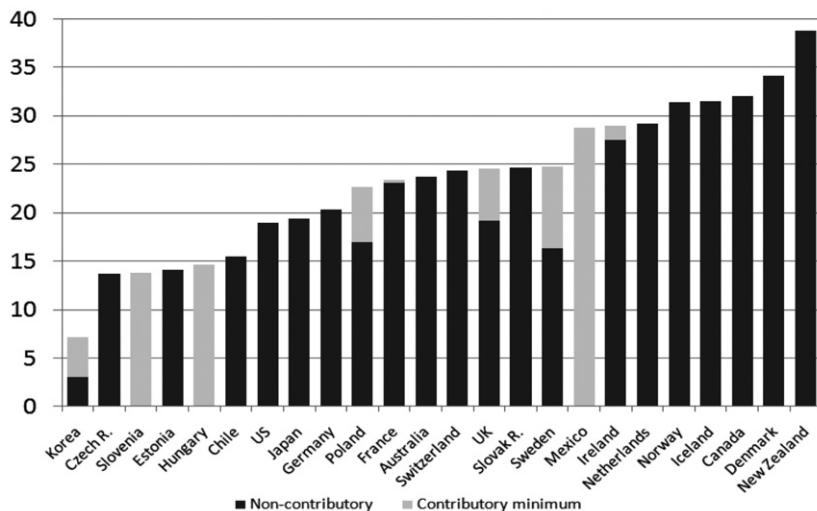
Graph N° 4 shows the value of the non-contributory pensions and that of the minimum contributory pensions as a percentage of the average wage of the economy in some OECD countries. In other words, this graph shows a kind of replacement rate for the basic pillar. It can be seen that some of those countries, specifically several in Central and Eastern Europe, are in the range at the extreme left-hand side of the graph, indicating low poverty protection in old age.

A country like New Zealand, for example, even though it has one of the lowest levels of public expenditure on pensions in the whole OECD, achieves better protection against poverty for people of retirement age through the basic pillar. This situation is in contrast with countries such as Korea, Czech Republic, Slovenia or Estonia where the basic pension does not amount to even 15% of the country’s mean wage.

So, although managing to improve the method of calculating fiscal deficits and implicit debts is highly desirable, it is also of prime importance to achieve pension system designs that include the aim of alleviating poverty in their essential structure, through social or non-contributory pensions that are suitably focused on the neediest people.

GRAPH N° 4

VALUE OF THE NON-CONTRIBUTORY AND MINIMUM CONTRIBUTORY PENSIONS  
 (% OF THE ECONOMY-WIDE AVERAGE EARNINGS)



SOURCE: PENSIONS AT A GLANCE 2011, OECD.

# CLOSING LECTURE



# IMPACT OF THE PENSION FUNDS ON ECONOMIC GROWTH: THE CASE OF THE DOMINICAN REPUBLIC

HÉCTOR VALDEZ<sup>1</sup>

- 1 Héctor Valdez is Governor of the Central Bank of the Dominican Republic and President of the Monetary Board, positions that he has held since 2004 and also performed successfully during the period 1994-2000. He graduated in Economics at the Autonomous University of Santo Domingo, Dominican Republic, and continued with specialised studies at the Institute of Social Studies attached to the Catholic University of Chile, the Institute of the IMF and the Advanced Studies Research Centre. He has worked at the Central Bank since 1970, occupying important posts such as Director of Economic Studies and Deputy-Manager of Monetary and Exchange Policy, among others. During his distinguished professional career he has carried out a variety of research projects and represented the country at important international conferences on numerous occasions. He has received various awards, one of the most important being the Public Servant's Medal of Merit (1996), among others.



## I. Introduction

In this short article I shall be presenting some conclusions about the impact of the pension funds on the growth of the Dominican economy. To do this I shall sketch a brief outline of the development of our individually-funded system, emphasizing its role in the deepening and diversification of the financial market, and making a parenthesis to highlight the potential economic impact of the recently enacted Law concerning the Mortgage and Trust Market.

## II. Brief description and profile of the Dominican Pension System

The emergence of individually-funded pension systems has undoubtedly turned out to be one of the most socially significant reforms to be carried out in the last three decades in our region. This type of scheme, which adapts more easily to economic and demographic changes, as pointed out by FIAP President, Guillermo Arthur, promotes the private management and investment of workers' resources in local and international financial markets, and at the same time introduces greater certainty in the provision of pensions and contributes to economic growth.

Since the early 1990s, the reform of pension systems has occupied a major place on the government agenda of a large group of Latin American countries. This was motivated to a large extent by the advances that Chile was already showing by that time, having pioneered the introduction of a scheme with those characteristics in 1981. So the Chilean model, with different variations, has spread to Peru, Colombia, Argentina, Mexico and Uruguay, later being introduced in El Salvador, Costa Rica, Nicaragua and the Dominican Republic.

As from the enactment of Law 87-01, which founded the Dominican Social Security System in the year 2001, it has been possible to tackle the coverage of old-age,

disability and survivorship pensions in a comprehensive manner, as well as the country's health and industrial risks. Prior to that date, only a small segment of the population had some limited access to social security.

Within the framework of this reform, the Dominican Republic has begun to assimilate the regional trend, successfully introducing a defined-contribution pension system managed by Pension Fund Administrators (AFPs), with the first contributions being paid in July 2003. So, looking towards the future, the idea is gradually to dismantle the pay-as-you go system administered by the State, which offers defined benefits that grant pensions in a way that is limited and, to some extent, highly discretionary.

In this new scheme, the real yield of the invested funds is closely associated with macroeconomic stability and the growth of the real per capita income in the country over time. This is where the monetary policy of the Dominican Republic plays a key role, bearing in mind that the foremost function of the Central Bank is to hold prices steady, fostering a climate of certainty for consumption and investment decisions.

The Dominican Pension System is made up of three schemes: first the Contributory Scheme, which includes wage-earning public and private employees and employers as a matter of course; second, the Subsidised Scheme, funded fundamentally by the State, which protects self-employed workers with incomes that are unstable and/or less than the national minimum wage, plus those who are unemployed, disabled and/or destitute; finally, the Contributory-Subsidised Scheme, which applies to independent professionals and technically qualified people and those self-employed workers with average incomes equal to or greater than a national minimum wage, with contributions paid by the worker and a state subsidy intended to make up for the lack of an employer.

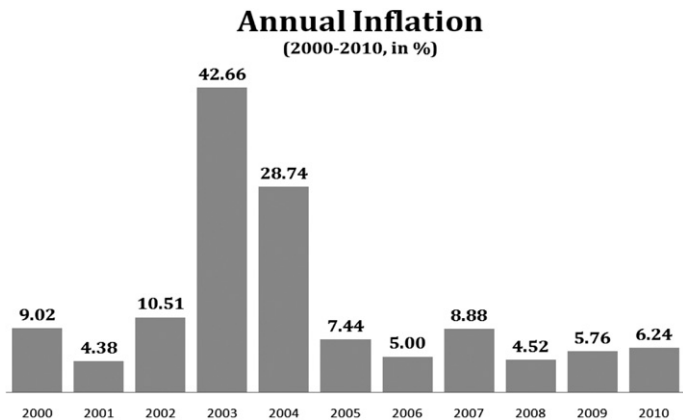
A feature that has enabled our Pension System to be rated by the International Association of Pension Fund Supervisors (AIOS) as one of the most efficient in terms of costs, consists in the fact that the Dominican Social Security System has set up a single mechanism for enrolment, information, collection and payment, plus the management of the database for purposes of providing benefits. It is the job of the Social Security Treasury to administer that single system through the Database Processing Company UNIPAGO, which is owned jointly by the AFPs and the State.

### III. Macroeconomic impact of the Dominican Pension System

As we mentioned above, a pension reform based on individual funding offers two basic advantages: a) it allows a decent pension to be provide for future pensioners, and b) it contributes towards boosting economic growth. Determining the direct effect of the pension funds on the economic growth of the Dominican Republic is quite a complex task, because the country was experiencing a climate of great macroeconomic instability in 2003, at the precise moment when contributions to the new system began, as a result of a banking crisis which produced a significant expansion in the issuance of currency that could not all be deactivated in time. This affected the performance of the pension system as it was just beginning.

It is a good moment to mention that this severe crisis cost approximately 20% of the GDP, causing a historic depreciation of the Dominican peso and an inflation of 42.7% and 28.7% in 2003 and 2004 respectively (see Graph N° 1). This situation affected the real yield of the pension system in its early days: it was negative in accumulated terms by 13.4%, 8.8% and 2.12% in the first three years of contributions (see Graph N° 2). In addition to the limiting factor already described, the fact that the Dominican Pension System has been operating for less than a decade restricts the strict empirical approach to this subject to a large extent and does not allow us yet to determine the true magnitude of the impact on growth that might be attributable to the pension funds.

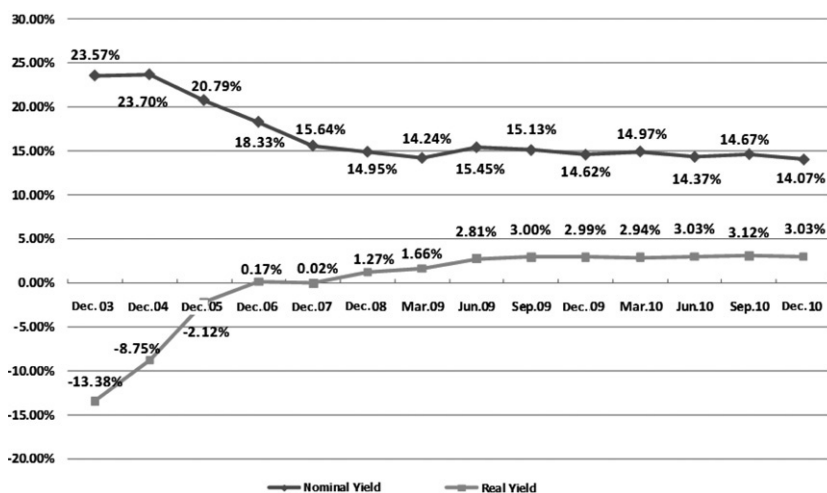
GRAPH N° 1



SOURCE: CENTRAL BANK OF THE DOMINICAN REPUBLIC.

GRAPH N° 2

## HISTORIC ACCUMULATED YIELD (2003-2010)



SOURCE: BULLETINS OF THE SUPERINTENDENCE OF PENSIONS (SIPEN).

Fortunately, other countries' experience, and very particularly that of Chile because it was the pioneer country as we explained earlier, can serve as a reference for us to draw relevant conclusions for purposes of analysing the impact on economic growth that we might expect of the pension reform, as also to apply a similar method to the Dominican case, when the moment arises.

On that matter, prestigious economists Vittorio Corbo, former president of the Central Bank of Chile, and Klaus Schmidt-Hebbel, former research manager of that institution<sup>2</sup>, have identified three ways by which a pension reform that uses an individual funding scheme influences the level and rate of growth of GDP over time, on the basis of the Chilean experience. These channels are: a) the financial and capital markets, b) the net effect on savings and investment, and c) the labour market.

2 Corbo & Schmidt-Hebbel (2004), "Macroeconomic Effects of the Pension Reform in Chile" in the FIAP Book "Pension Reforms: Results and Challenges".

## a) Development of financial markets

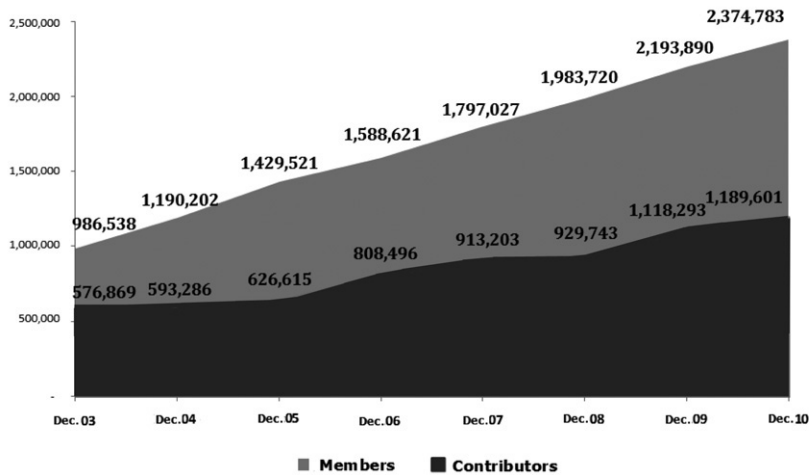
Economics literature suggests a close relationship between the adoption of an individually-funded system and the development of financial markets. In concrete terms, the financial market becomes deeper, more liquid and more competitive. To put it one way, a considerable proportion of the economy ceases to depend on external influxes of short-term capital because the pension funds constitute an important source of internal savings to fund investment. Furthermore, the long-term nature or vocation of pension fund investments has a direct influence on the reduction of trading costs in the financial system.

In the same way, the degree of transparency warranted for approving the instruments in which pension funds are authorised to invest, plus the limits on investing in them, both contribute to reduce the risk of the investments. In fact, the Dominican law stipulates the types of instruments in which pension savings can be invested. In the same way, it produced the idea of a deliberative body called the Risk and Investment Limit Rating Commission, composed of the Superintendents of Banking, Pensions, Securities and Insurance, a technical representative of the members and the Governor of the Central Bank. The main functions of this Commission are directed towards deciding the degree of risk of each type of instrument, the policy for diversifying the pension funds' investment portfolio and the maximum investment limits per type of instrument.

It is important to emphasise that, seven and a half years after the contribution process of the Dominican Pension System began in July 2003, a total of 2,374,783 members (see Graph N° 3), representing 54.1% of the economically active population, are owners of an accumulated pension fund net worth amounting to DOP 120,341.4 million at the close of 2010, equivalent to 6.2% of the GDP (see Graph N° 4). Of the total members enrolled in the system, 50% are active contributors.

GRAPH N° 3

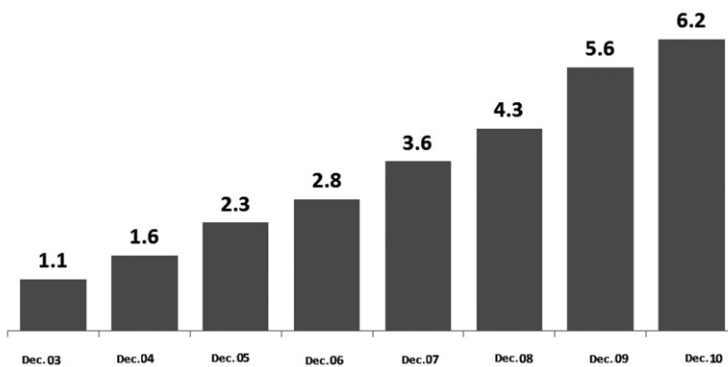
GROWTH IN NUMBERS OF MEMBERS AND CONTRIBUTORS



SOURCE: SIPEN BULLETINS.

GRAPH N° 4

PENSION FUNDS AS A % OF THE GDP (2003-2010)



SOURCE: SIPEN BULLETINS.

At the close of the year 2010, the pension funds constituted 16.2% of all the instruments in the Dominican financial market that qualify for acquisition by them, with investments totalling DOP 49,418.5 million, which in turn represents 41.1% of the total accumulated in the workers' individual funding accounts. Meanwhile the pension funds have acquired 76.7% of the instruments with an investment-grade rating that are traded on the incipient Dominican stock market, with a portfolio amounting to DOP 11,382.9 million, representing 9.5% of the total portfolio chargeable to the Dominican workers' pension savings. Of the remaining 58.9% of the investments, 40.9% are placed in Central Bank securities, 8.6% in Treasury Bonds and 9.5% in the Dominican securities market (see Table N° 1).

TABLE N° 1

PENSION FUND INVESTMENTS IN ISSUER MARKETS  
(IN DOP AS OF 31<sup>ST</sup> DECEMBER 2010)

Issues	Financial Market	Securities Market	Central Bank	Finance Ministry/Treasury	Total Investments
<b>Investment of the Pension Funds</b>	49,418.5	11,382.9	49,233.3	10,316.7	120,341.4
<b>In circulation, suitable for acquisition</b>	304,336.7	14,847.7	219,580.1	554,474.6	-
<b>Share in suitable investments</b>	16.2%	76.7%	22.4%	1.9%	-
<b>Percentage Distribution of Investments</b>	41.1%	9.5%	40.9%	8.6%	100.0%

SOURCES: SIPEN, SUPERINTENDENCE OF BANKS, SUPERINTENDENCE OF SECURITIES, CENTRAL BANK OF THE DOMINICAN REPUBLIC AND GENERAL DEPARTMENT OF PUBLIC CREDIT.

In terms of investment diversification, our country is on a par with Uruguay, in a middle position at regional level with approximately 50% of the funds invested in Government Debt (Central Bank and Treasury) (see Table N° 2). Of the remainder of the portfolio, the largest part is invested in Financial Institutions and Corporate Bonds. This behaviour is normal in a system with only a few years in operation and a securities market like the Dominican one, which is just starting to develop.

TABLE N° 2

COMPARATIVE TABLE OF COMPOSITION OF PENSION FUND INVESTMENTS  
(JUNE 2010, IN %)

COUNTRY	GOVERNMENT DEBT	FINANCIAL INSTITUTIONS	NON- FINANCIAL INSTITUTIONS	SHARES	MUTUAL FUNDS AND INVESTMENT FUNDS	FOREIGN ISSUERS	OTHERS
Chile	10.0	16.6	11.1	14.6	2.5	45.0	0.1
Colombia	43.9	4.1	5.7	31.9	1.2	12.0	1.2
Costa Rica	61.7	22.3	4.5	0.1	5.4	3.1	2.9
El Salvador	81.9	14.8	3.3	-	-	-	-
Mexico	66.1	2.6	15.1	8.0	-	8.2	-
Panama	2.1	59.4	28.0	9.9	0.2	0.4	-
Peru	18.8	9.3	11.1	30.5	3.0	22.9	4.4
Dominican Republic	49.3	45.5	5.2	-	-	-	-
Uruguay	50.0	28.2	17.1	1.5	-	2.0	1.2

SOURCE: INTERNATIONAL ASSOCIATION OF PENSION FUND SUPERVISORS (AIOS).

Most of the studies of the effects of pension system reforms on capital markets have focused on the impact on volumes of operations and the development of new institutions and regulations. However, the recent international financial crisis has served to remind us how important it is to monitor the prices of financial assets. So it becomes interesting to analyse the effect of the pension reform on interest rates in the financial market.

For the Dominican market, a recent study by Raúl Hernández (2010)<sup>3</sup> found that an increase in pension fund investments of 1% of GDP produces a downward movement of the whole term structure of passive interest rates by an average of between 1.1% and 1.6%, greater than in the case of active rates, which fall by 1%. This result is in line with preliminary evidence that the same author has found for Mexico, Colombia and Peru.

In order to continue increasing the levels of real yield of the pension funds, it is vital to encourage the development of a more efficient, deeper market of public debt

3 Hernández, Raúl (2010). "Structure of Interest Rate Terms in the Dominican Republic: Impact of Traditional Macroeconomic Factors and the Individually Funded System", 1st place in the Juan Pablo Duarte economics competition, 2010, Central Bank of the Dominican Republic.



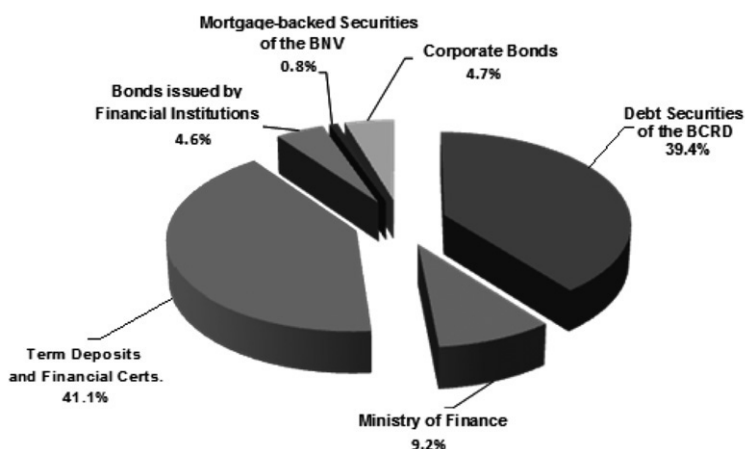
and securities, and also to consider opening new market niches to allow greater diversification.

As can be seen, the pension reform has had an important influence in deepening the financial market. As a direct result of the emergence of the pension funds and their need to seek investment alternatives with a long-term aim, new financial instruments have been and continue to be created in the Dominican Republic, benefiting both the workers and the companies. The pension funds undoubtedly constitute the most important institutional investors in the financial system.

A tangible example of how the funds have encouraged the diversification and deepening of the financial market are the securities issues brought out by large Dominican companies, which have managed to capture 4.7% of the total pension resources (see Graph N° 5), offering securities in the financial market which, without the pension reform, would have taken much longer to place. In addition, the law on the Mortgage and Trust Market was recently enacted in the country, and I shall be referring to that further on.

GRAPH N° 5

COMPOSITION OF THE PENSION FUNDS' INVESTMENTS (DECEMBER 2010)



SOURCE: SIPEN.

NOTE: BNV=NATIONAL BANK OF HOUSING AND PRODUCTION PROMOTION; BCRD=CENTRAL BANK OF THE DOMINICAN REPUBLIC.

## **b) Saving and investment**

A pension reform has ambiguous effects on private saving. This is why there is no clear consensus in the literature about the effects of pension funds on savings. On the one hand there tends to be more saving, because workers are obliged by law to accumulate assets for retirement in the individually-funded scheme. But this positive effect of pension funds on savings could be offset by two factors: the costs of the transition from the pay-as-you-go system to the individually-funded scheme (recognition bonds and supplementary funds chargeable to public funds), which reduce national savings, and also the possibility of a decrease in workers' voluntary saving, as a way of offsetting, partially or completely, the mandatory increase in saving under the new pension system.

Empirical studies at the level of the majority of countries that have adopted this scheme have not found a clear, positive relationship between the pension funds and national saving. A potentially positive effect depends on the macroeconomic situation, the specific characteristics adopted by the reforms in the various countries and the implementation of complementary structural reforms.

In the Dominican Republic it is still much too early to draw conclusions concerning the net effects of the reform on national saving. In addition to this, from July 2003, when contributions to the system began, until the present, the Dominican economy has been hit by considerable internal and external blows and the influence that these have had on savings in isolation is difficult to discern.

## **c) Efficiency of the labour market**

The step from a pay-as-you-go system to one of individual funding theoretically reduces the distortions of the labour market and makes for a decrease in informality in the labour market, because a link is established between contributions and benefits. This is especially true if the new system reduces what might be called the net tax on the payroll.

According to available information and research carried out by experts, in the Chilean case the pension reform significantly reduced the net tax on employment, corresponding to the difference between the social security contributions and the expected future benefits, which was very great in the old system. This reduction in the tax resulted in an increase in employment in the Chilean economy. Formal employment expanded while informal employment contracted. This change

in the composition of employment also contributed to an increase in the mean productivity of work.

By contrast, in the Dominican case, where a pay-as-you-go system with very limited coverage had existed up to that point, the coming into effect of the new individually-funded pension system introduced considerable additional costs for companies which had not formerly had to pay contributions for most of their employees. This was because contributions to the pay-as-you-go system were only required for private workers with a very low level of income.

The monthly contribution of the workers to the pension system, which started at 7% in the first year of contributions, today represents 9.97% of their gross wage. Of this percentage, 8% goes into the individual funding account, 1% to the disability and survivorship insurance, 0.5% as commission to the AFPs, 0.4% to the Social Solidarity Fund and 0.07% to finance the operations of the Superintendence of Pensions. As regards the origin of these contributions, of the 9.97%, 7.10% corresponds to the employers and 2.87% to the workers.

#### **IV. Potential impact on pension saving of the new law on the mortgage and trust market.**

There is a general consensus that promoting appropriate diversification of the pension funds' investment portfolio is a matter of urgency for an individually-funded pension system, in order to minimise risks and achieve an adequate return that makes it possible to grant worthwhile pensions for the workers. The idea of this new law on the mortgage and trust market in the Dominican Republic is to take advantage of long-term national savings to finance the housing sector and other productive investments, achieving better hedging and diversification of the workers' savings while at the same time contributing to the creation of jobs and the sustainable economic development of the nation.

To support this suggestion, it is worth emphasising that countries such as Chile have managed to finance over 580,000 dwellings in almost two decades with resources saved in the Chilean pension funds, reducing the housing deficit in that country to its minimum expression, while the Mexican Pension System has financed over two and a half million housing solutions in barely ten years.

With the precise aim of responding to the above statement in the local context, in 2008 the President of the Dominican Republic, Dr Leonel Fernández R., sponsored

the idea of forming a team made up of representatives from the public and private sectors, to draw up the legal framework to make that aim feasible, in the light of international initiatives, i.e. to expedite the building of real-estate projects that would reduce the considerable housing deficit that exists.

There is no mistaking the fact that the savings managed by institutional investors, such as pension funds and insurance companies, among others, are really ideal for constituting the main source of funding for long-term investment projects needed by the various sectors of the economy.

In that spirit, the Project for developing the Mortgage and Trust Market was drawn up and approved by the Monetary Board. It has already been sanctioned by the National Congress and submitted to the Executive for enactment. With this unified legal framework, it is possible to promote mortgage development in our country, creating the figures, instruments, mechanisms and incentives necessary for such a purpose. In this way, conditions are created for issuing a variety of long-term financial instruments, which will constitute investment alternatives for diversifying the pension funds' portfolio.

We are convinced that it will be highly beneficial for the country to have a proportion of the pension funds dedicated to housing construction, in addition to the investments that already exist in financial instruments and the Stock Market, because all the entities involved benefit from this initiative. The pension funds diversify their investments; the construction companies gain access to funding on better terms, in other words, with lower interest rates, longer periods and larger amounts; and the workers gain access to housing at low financial costs.

With this initiative, it is expected that Dominican workers will achieve a position in which the channelled proportion of their pension savings is held safely in mortgage instruments that guarantee adequate returns and low risks by means of transparent, safe, competitive mechanisms. In addition to the above there will be potential benefits allowed by the State in the way of contributions in sites, special bonuses and fiscal exemptions which will make it even easier for the working class to acquire its own roof, resulting in greater social justice and a better quality of life for all Dominicans.

## V. Final thoughts

We are all aware that, in the face of the complex, difficult and somewhat uncertain international environment, developing economies will need more than ever before to optimise the positive externalities of those substantial, exponential, mandatory long-term savings accumulated by the enrolled workers' pension funds.

Though it is important to recognise the advances and contributions achieved so far in this matter, which has such human and social significance, it is no less important to accept that there is a long furrow to plough with a view to consolidating the pension systems, especially with regard to expanding and truly achieving the desired universal coverage, with worthwhile pensions, and effectively maximising the diversification of the pension funds' portfolio, in order to have a positive influence on the creation of wealth, productive jobs and greater welfare for the population.

For all the above reasons, it is essential to pursue the path of macroeconomic stability and growth that is sustained over time, with the united effort of all the sectors that interact in the pension systems, as also to promote a pension culture at all levels to support the sense of belonging that will make this conquest of the workers feasible. We believe that we are going the right way. This exchange of experiences leaves us with the lesson that, by uniting our willpower we can contribute to a better positioning of the region, but above all to a growth that is fairer and more humane.

# CLOSING REMARKS

I am deeply grateful to the Dominican Association of Pension Fund Administrators (ADAFP), its Executive President, Kirsis Jáquez, and the team from the International Federation of Pensions Fund Administrators (FIAP), for the outstanding organisation of this conference. In a few hours more we shall all be returning to our home countries and, in addition to taking with us the memory and the affection of all our Dominican friends and the beauty of these landscapes, we shall also leave with the awareness of having taken part in an extraordinarily enriching debate, which is acquiring increasing virtuosity as we accumulate more experience in the management of pension funds in each of our countries.

There is no doubt that the economic crisis had a detrimental effect on the pension systems, but it was also made clear that the individually-funded systems had more strength to resist it. That does not mean that there are no lessons for us to learn, in terms of what a future crisis might be. That is why Vittorio Corbo's message reassures us considerably by listing all the regulatory measures to make the financial system stronger, since this also results in a better environment for investing the pension funds.

I also believe that another of the lessons we should take from this lies in how to explain to our members the risk to which they are exposed, at the same time as informing them about the yield of their investments. There is no doubt that risk is an extremely important aspect, which we must explain, and we must also take the necessary measures to diversify the investments as one of the clearest ways of gradually reducing the risk to which workers are exposed.

I therefore believe that what Héctor Valdez, Governor of the Central Bank of the Dominican Republic, has told us is an important contribution to this diversification. It is an on-going process in which we must never stop until we have achieved a diversification that really signifies a considerable reduction of risk.

We are also left with a clear idea of the stabilisation that we must create in the whole of the payout stage, looking at how we can improve the mechanisms or the pension options so that these remain as stable as possible over time, when facing longevity and reinvestment risks, among others.

It was also important to be able to tell you about Chile's experience, in which we managed after 30 years to integrate the different pillars in order to handle the different aspects that go into creating a pension in an integrated way. This is because although the second pillar takes charge of investing the money deposited by employees under the mandatory system, our countries have a weakness, namely informal employment and social security gaps, which means that a non-contributory, well-targeted public pillar is really essential. I think that the Chilean experience in that sense is very enriching.

Finally, I cannot avoid a reference to the concern felt by us all as a result of what has been happening in certain countries in Central and Eastern Europe, where some of the reforms based on the individual capitalisation of savings are starting to be reversed. I think that the analysis made of this issue is also highly enriching and I trust that we will be able to communicate the advisability of staying on track with an individually-funded system.

I therefore believe that this debate has been extremely worthwhile and I think that we shall continue with this exchange of experiences in the future. Our goal is that each of our systems may improve with the experience of the others.

Next year, 2012, we shall continue to share our experiences in Mexico, thanks to a kind invitation from the Mexican Association of Pension Funds Management Companies (AMAFORE) to host the next FIAP International Seminar, to which, of course, you are all cordially invited.

I wish you a happy return to your respective countries and thank you once again for your presence and the contribution that you have made to the debate during this Seminar

**Guillermo Arthur**  
President of FIAP





# EARLIER FIAP PUBLICATIONS

One of the aims of our Federation is to make known the advantages of pension systems based on individual saving and support the governments that wish to adopt them. With this in view, one of our regular activities as a Federation is the organization of seminars and round-tables. As a result of these activities, we have published nine books, which summarize the presentations given at those seminars, and are sure that these have contributed towards improving the literature on this subject. These books are described below:

***“Regulación de los Sistemas de Pensiones de Capitalización Individual: Visiones de los Sectores Público y Privado” (Seminario Lima-Perú, diciembre 2002).***<sup>1 2</sup>

This publication tackles aspects such as the challenges of the new pension systems, the models and priorities of supervision, collection of contributions and management of individual accounts, coverage, regulation and supervision in the area of benefits, price formation in the social security industry, regulation and supervision of marketing and sales, and regulation and supervision of pension fund investments. The authors deal with these subjects from different points of view, which contribute to an enrichment of the debate on the subject of pensions in the countries that have carried out social security reforms, especially in Latin America..

- 1 This book is the only one on the list that was published not by FIAP, but by the International Labour Office (ILO). However, it is included on this list because the seminar on the basis of which it was written was organized jointly by the International Association of Pension Fund Supervisory Authorities (AIOS) and FIAP.
- 2 This book is not available in an electronic version on the FIAP website.

***“Pension Reforms: Results and Challenges” (Seminar held in Cancun, Mexico, May 2003).***

In this book an analysis is made of the results of the new social security systems, both in Latin America and in Central and Eastern Europe, from the point of view of how they have influenced improvement in pensions and contributed to the growth and economic development of the countries. In order to do this, it reviews the rates of return of the investments of social security resources and matches them with the growth of workers' wages. At the same time, it measures the impact of the reforms on savings and investment, thereby attempting to measure the contribution that they signify for the economic development of the country. There is also an analysis of the main challenges in the social security area for the industry, the regulators and the political system.

***“Pension Reforms in Eastern Europe: Experiences and perspectives” (Seminar held in Kiev, Ukraine, May 2004).***

This book summarizes the experiences of social security reforms in the countries of Eastern Europe, such as Bulgaria, Croatia, Hungary, Poland, Kazakhstan and Kosovo. Also presented are the main perspectives for reform in Slovakia and Macedonia. The common denominator in all these countries is that they possess individually funded systems in expansion. The book follows with an analysis of the challenges for implementing reforms, in terms of the regulation and supervision of pension funds and their fiscal and economic impact. The book concludes with an analysis of the conditions necessary to ensure the success of the reforms.

***“Pension Fund Investment” (Seminar held in Lima, Peru, November 2004).***

This book contains a diagnosis of pension fund investment regulation in Latin America. It contains an analysis of the improvements to that regulation, dealing especially with the case of the multi-fund system in Chile, Mexico and Peru. It also looks in depth at the development of the capital markets and analyses the political risks of pension fund investment in the region. Among the most important conclusions to be drawn from the aforementioned subjects are the role of the yield of the investments as a deciding factor in improving pensions and the need for greater diversification, including investment abroad.

***“The Strengthening of the New Pension Systems: The Role of each pillar in the Solution of Pension Problems” (Seminar held in Cartagena de Indias, Colombia, May 2005).***

This publication analyses reforms to social security systems that have included mandatory individual capitalization/funding systems in their second pillar, in response

to the criticisms and objections that are being leveled at them, and analyses future improvements. The role of each pillar within the social security system is highlighted and an in-depth study made of the structure of first pillar programs in Latin America. The key issues of mandatory contribution programs in the second pillar are reviewed and experience in the area of voluntary social security saving (third pillar) is described. One of the most important conclusions arising from the discussion is that the criticisms made of the mandatory individual saving systems are seen to include aspects that, though part of social security, are not the responsibility of the contributory systems, as is the case of coverage.

***“Pension Funds Investment Perspectives” (Seminar held in Santiago, Chile, May 2006).***

This book discusses which the best investment alternatives for pension funds are. The facts show that 1% of additional yield over the course of the whole working life of a member of a pension fund administrator may result in a pension that is 30% higher. To corroborate this, an in-depth analysis is made in this publication of issues such as the historic performance of the pension funds in Latin America, the regulation and control of investment risks, the best portfolios for social security funds, the characteristics of the multi-fund systems, the strategies for the international diversification of pension funds, the financial impact that occurs in the stage just prior to retiring age, and the importance of corporate governance in pension funds.

***“Funded Systems: their contribution towards solving the pension problem” (Seminar held in Varna, Bulgaria, May-June 2007).***

In the first instance, this book shows the political economics of pension reforms, taking into account the experience of countries in Eastern Europe and also the pension reforms in Bulgaria and Mexico. Secondly, it analyses the results of the pension reforms for the workers, separating the effects on the labour market and on redistribution of income. An analysis is also included of the workings of the Disability and Survivorship Insurance (DSI) in the Chilean case. Thirdly, it shows how to structure an effective multiple-pillar system in the light of the new Chilean pension reform, the public/private ratio in the pension reform, the design alternatives for non-contributory pension programs (social pensions), and the fiscal effects of the pension reform in Chile. A fourth set of issues analyzed here concerns the investment policies and strategies of the pension funds, experiences and trends in multi-fund systems and regulation and monitoring of investment risk in mandated, defined-contribution systems. Finally the book culminates with a number of different views of the prospects for the pension reforms in Europe.

***“Pensions for the Future: Developing Individually Funded Programs” (Seminar held in Lima, Peru, May 2008).***

This book analyzes the performance of the new pension systems in Latin America and Central and Eastern Europe, describes the progress of pension reforms in countries that have recently begun to implement them or are about to do it in the near future, and identifies best practices for improving the design of regulations in the individual capitalization programs. It examines issues related to the lessons of pension reforms, investments regulation, supervision models, coverage, pension modes, pension business management, and disability and survivorship insurance in the cases of Argentina, Chile and Mexico. It also discusses the pension reforms in China, Philippines, Romania and New Zealand. It also analyzes the future of pensions in Peru, addressing the issues of pension coverage, quality of social protection, capital markets, and the supervisor’s vision. Finally, the book ends with a discussion on whether the battle of public opinion regarding the pension reform has been won.

***“Investments and Payouts in Funded Pension Systems” (Seminar held in Warsaw, Poland, May 2009).***

The book is divided into nine chapters. The first four chapters refer to subjects related to the pension accumulation phase, whereas the other five chapters show issues inherent to the payout phase. The first chapter of the book deals with the pension fund investment performance. In the second chapter, the book asks how much financial risk level a funded system may accept, showing the life-cycle risk perspective in the context of pensions. The third chapter shows a close relationship between economic cycles and pension funds. Chapter four shows the current tendencies of pension fund investments and presents the views of three outstanding speakers on infrastructure investments, thematic investments and Exchange Traded Funds (ETF), respectively. Regarding the pension payout phase, chapter five refers only to the issue of explaining the optimal pension modes in an obligatory pension system. Chapter six analyzes the market of annuities and scheduled withdrawals under the commercial and descriptive perspectives. Chapter seven contains issues that are of vital importance for an adequate development of the pension market: the keys for success in the annuities market, the challenges involved in the selection of products during the payout phase and an explanation on why the funded pension systems will be more capable to face the demographic challenges than the PAYGO systems. The second-to-last chapter deals with the perspectives of the Polish pension system. Finally, the book finishes with chapter nine, where it is reviewed the future of mandatory pension funds in Europe and beyond, describing the financial crisis implications for the private pension funds, commenting the lessons derived from the crisis for the funded pension systems and stating the medium-term challenges to reform the mandatory pension funds in Europe and other industrial countries.

***“Developing the Potential of the Individually Funded Pension Systems” (Seminar held in Viña del Mar-Chile, May 2010).***

The publication provides the reader with several works that seek to identify means and instruments whereby pension fund managers can extend the contribution they make in solving the pension problem and, in more general terms, improve the quality of the population’s social protection. Papers presented by renowned academics and authorities are featured at the beginning of the book. Like the invited speakers, they speak on the seminar’s subjects with a practical and objective focus aimed at highlighting the characteristics and concrete results of policies, products and organization and management models that can serve as a reference for innovating and improving the processes and regulations of pension fund managers and regulators.

The book is divided into three parts. The first part, “How can the Coverage of the Individually Funded Programs be Extended?”, explores different ways in which the funded programs can extend their coverage to sectors of the population that are not currently engaged in pension saving. The second part, “New Products”, explores ways in which the pension industry can use its experience and capacity to advantage for attending to other social security protection needs of the population. The third part, “In Quest for Excellence”, is divided into three chapters. The first one, “Pension Information and Education,” analyzes the role played by financial education within the context of defined contribution pension systems, from the standpoint of the industry and the supervising agencies. The second chapter, “Ideas for Improving Operational Efficiency,” analyzes the organization and process alternatives that enable the operational management and efficiency of the industry to be improved. Finally, the third chapter, “Ideas for improving the impact of investments on local economies,” analyzes the investment alternatives available to the pension funds in housing, infrastructure and micro-companies.

For your information, these publications are available in an electronic version on the FIAP website, <<http://www.fiap.cl>>, in the “FIAP Publications/Books” section. Copies of these publications may be obtained writing to e-mail: <[fiap@fiap.cl](mailto:fiap@fiap.cl)>.

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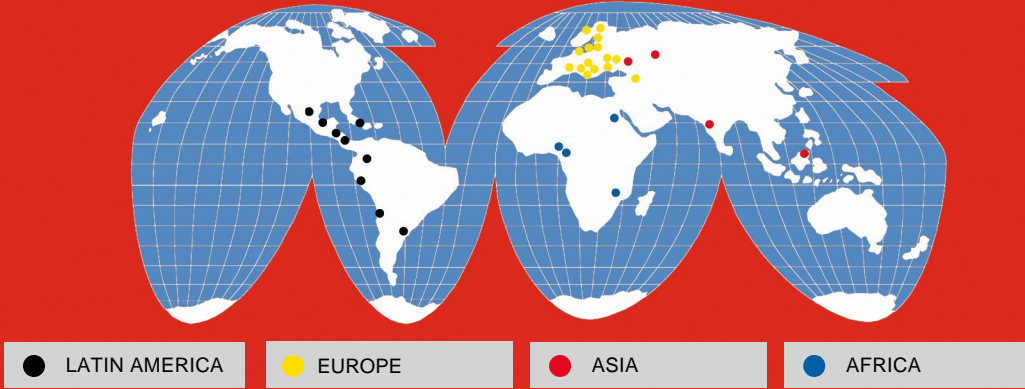


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COUNTRIES WITH REFORMED PENSION SYSTEMS (1)



Chile	1981	Poland	1999	Kazakhstan	1998	Nigeria	2005
Peru	1993	Sweden	1999	India(**)	2004	Ghana	2010
Colombia	1994	Latvia	2001	Brunei	2010	Egypt(**)	2012
Uruguay	1996	Bulgaria	2002	Armenia(***)		Malawi(**)	
Mexico	1997	Croatia	2002				
El Salvador	1998	Estonia	2002				
Costa Rica	2000	Kosovo	2002				
Panama(*)	2002	Russian Fed.	2003				
Dominican Republic	2003	Lithuania	2004				
		Slovak Rep.	2005				
		Macedonia	2006				
		Romania	2008				
		United Kingdom(**)	2012				
		Ukraine(**)					
		Czech Republic(**)					

The year given corresponds in each case to the beginning of mandatory funded pension system's operations.

(1) Information updated to September 30, 2011.

(\*) Reform for civil servants.

(\*\*) Reform approved but not yet implemented.

(\*\*\*) Reform proposed but not yet approved or implemented.



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