



INTERNATIONAL
FEDERATION OF PENSION
FUND ADMINISTRATORS

INVESTMENTS AND PAYOUTS IN FUNDED PENSION SYSTEMS

Presentations given at the
International Seminar
**"Investments and Payouts in
Funded Pension Systems"**
on May 28 and 29, 2009,
in Warsaw, Poland.

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1 Mr. Luis Viceira, Professor, Harvard Business School, Harvard University, USA, was a speaker at the inaugural conference of the 2009 FIAP Internacional Seminar "Investments and Payouts in Funded Pension Systems", with the theme "New developments in portfolio theory: their relevance for mandatory pension funds investments". The paper on which he based his presentation can be reviewed at the following website: <http://www.oecd.org/dataoecd/44/60/43779987.pdf>. This work is part of a joint research project of the Organisation for Economic Co-operation and Development (OECD) and the World Bank on measurement of financial performance of pension funds. The final results of this project will be officially published in December 2009.

PRESENTATION WORDS ON INAUGURATING THE SEMINAR

Ladies and gentleman, welcome to Warsaw and this seminar organized by the International Federation of Pension Fund Administrators, FIAP, and the Polish Chamber of Pension Funds, IGTE.

I would like to start by thanking Ewa Lewicka, president of IGTE, for the extraordinary reception she has laid out for us. We are holding this seminar after a year deeply marked by an economic crisis which has affected the whole world due to the globalization of markets and which, undoubtedly, has had an enormous impact on the value of pension funds.

The devaluation of the pension funds has rekindled initiatives in many of our countries, which far from understanding the profound meaning and scope of this financial crisis, have sought to return to the PAYGO systems, ignoring their structural crisis generated by demographic issues, among others.

Due to the foregoing, we have been organizing seminars and participating in round tables throughout this period in an attempt to point out the scope of crises such as this one. We have said that pension funds must be analyzed and assessed in the long term and that drawing up a one year balance makes no sense in a 30 to 40 year life cycle. That is the term in which we must analyze the performance and the profitability of the pension funds. We have also said that we have undergone devaluation at other times in other financial crises which we have also weathered and recovered from. Thus, we now wish to respond to all such critics with a seminar in which we propose to draw the correct lessons of the financial crisis on pension funds.

During this seminar we will hear about all these effects, in both the fund accumulation and decumulation stages. We would therefore like to identify, through this seminar and the speakers participating in it, the main elements for dampening the effects of an economic crisis on pension funds, which is a risk that will always be present in the individually funded systems. Naturally, we will examine the issue of the multifunds and investment diversification. If one observes the performance of the pension funds one can see that they performed better than the stock exchanges, due precisely to the degree of diversification most countries have in pension fund portfolios.

We would also like to analyze the convenience of regulatory rules and regulations encouraging pension fund investments to be viewed in a long term horizon and doing everything possible for competition to be within such horizon.

We want to determine what the optimal investment portfolios are. We will see what new instruments are available for improving the performance of the pension funds. We also wish to determine the best modes for the retirement or decumulation stages.

In short, we want to draw the correct lessons from this very profound crisis, which has seriously affected the pension funds we manage, for the purpose of once again boosting and strengthening these individually funded systems which are the best way of dealing with the worldwide crisis of the PAYGO systems. They are also the correct answer for improving and resolving the pension situation of workers who contribute regularly, and at the same time contributing to the economic development of our countries through this saving.

I am sure that given the quality of each one of our speakers and all those present here today, we will leave this seminar having learnt lessons that will be of great use for revitalizing these systems and blocking those who wish to stop the clock and go back to systems that have clearly failed all over the world.

As has become tradition, this publication entitled “Investments and Payouts in Funded Pension Systems” shows the results of the presentations in the seminar of the same name. We trust it will be useful for all actors linked to these issues.

Guillermo Arthur
FIAP President

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, by Supreme Decree Nro 801, issued by Uruguayan Ministry of Education and Culture. It currently has twenty-one “full members” in the same number of countries and eight “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 (as of December 2008): The Dutch Antilles, Bolivia, Brazil, Bulgaria, Colombia, Costa Rica, Chile, El Salvador, Spain, The Russian Federation, Honduras, Kazakhstan, Mexico, Panama, Paraguay, Peru, Poland, Romania, The Dominican Republic, Ukraine and Uruguay.

The workers number of the FIAP member associations and institutes are 116.089.806 as of December 2008, and accumulate more than 565 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 Pension Network; Barclays Global Investors, N.A.; Eurizon Capital S.A.; Gartmore Investment Management; Pictet & Cie (Europe) S.A.; Principal Financial Group; State Street Global Advisor and Vontobel Europe S.A.

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 contest criticism faced by such systems and the preparation of Guidelines to assist in the better design of individually funded systems regulation.

OPENING CEREMONY

Mr Minister,
Mr President,
Honourable Participants of the FIAP Seminar,
My Dear Friends,

I cordially welcome you to Warsaw and the annual FIAP seminar. The Polish Chamber of Pension Funds, IGTE, is greatly honoured to be the host and co-organizer of such an important event which offers an excellent opportunity to celebrate the 10th anniversary of the Polish pension funds, with representatives of pension fund administrators and pension experts from all over the world. Our Chamber associates 12 of 14 Polish General Pension Societies representing the great majority of the market.

Apart from marking the 10th anniversary of the Polish pension funds, 2009 is also the first year of paying benefits from the funded pension system in Poland. Hence, we want to share with you our experience in the field of pay-out phase.

Above all, the current year is exceptionally hard because the pension funds industry is being misjudged as a consequence of the financial crisis all over the world. In difficult circumstances a council is usually called to analyze the situation and indicate a remedy. In my opinion, there is no more respectable a group

of researchers and representatives of the pension industry to assess and propose the necessary changes in the funded pension systems than those attending the Warsaw seminar. I hope we will find the best solutions to make the pension funds more efficient and less sensitive to disturbances in on financial markets.

Fruitful proceedings!

Ewa Lewicka-Banaszak

President

Polish Chamber of Pension Funds, IGTE

OPENING CEREMONY

Ladies and Gentlemen,

Thank you very much for your invitation to attend this conference. At the very outset I would like to stress the importance of discussion about the future, reforms and developments of pension systems. In terms of challenges related to both the crisis and a long, strategic, perspective of the development (not only of Poland), the dilemmas of economic and social policy - including pensions – is particularly important. It is also necessary to debate and take action to resolve those issues.

I would like to begin with two issues which are actually somewhat political. A person who follows the discussion on pension funds in Poland can see that some of the media and some in this field, are inclined to say that the mean capitalists from pension funds bear some blame for the depletion of pension fund assets. However, when people think about the nature of the economy they should also think of the nature of volatility, that is, economic cycles, changing conditions of the economy, as well as challenges such as the current crisis. A few months ago “The Economist” published information about the OECD report showing that the asset losses suffered by pension funds during the period from January to October 2008 (the result as of the end of 2008 was probably a bit worse) amounted on average to 22% in real-terms.

Two days ago, “The Financial Times” presented interesting results on research as to whether particular communities in different countries are more concerned about

their future pension income, compared to the situation prior to twelve months. In the United States about fifty eight per cent are concerned, while only eight percent of the people claim they are "less concerned". In Spain, 40 to 50 percent exhibit their anxiety. The problem is smaller in Germany, maybe because their pension system is evidently different, although I am not sure whether State guarantees, extended to more traditional models of retirement, are safe. The same article shows the extent to which we are willing to consider lengthening the period of our professional activity and postponing the retirement age for higher pension benefits.

This research shows interesting results when it comes to the United Kingdom and the United States: about 60% of the respondents felt that they were prepared to work longer to have a better pension. In Germany, this quota is only about twenty percent, compared to forty two percent in France and more or less fifty percent in the case of Spain. What do these signals mean? They prove that in an era of crisis, a result of the financial crisis, the concerns around the pension system and our future in old age are increasing, rather than decreasing. This is why I see this as a paradoxical contradiction. On one hand we ought to celebrate with joy - as an achievement - the 10th anniversary of the introduction of the new pension system; while on the other hand we are experiencing some kind of threat to a greater degree than before, at the time of this anniversary. I would like to focus the rest of this speech on a summary of pension reforms in Poland.

I shall start with the achievement of the Polish pension reform, because past achievements are well worth mentioning during this conference, which will lead us to the next steps in pension reforms.

First, thanks to courageous decisions made at the end of the 1990's, betting on diversity we strengthened the security of the pension system, and what is - perhaps - also very important, we increased the possibilities for its financial solvency from the perspective of the next ten, twenty, thirty, and forty years.

Second, these changes to the new pension system gave rise to new attitudes. The attitude of individual responsibility, because regardless of what opponents of the pension reform say, it is not about privatizing the pension system but about individualizing it. We have more knowledge about our savings for old age, but we also assume greater individual responsibility for these savings. Earnings, length of employment, longer professional activity are the factors that shall influence the amount of future pensions in a much bigger scale.

The third major achievement of this reform was the creation of economic stimulators, which cause a longer working lifespan to be more profitable in terms of better economic security in old age. This is vital in Poland, where for many years we had been struggling hard with the problem of early exit from the labour market, and only last year's great debate, resulting in the closure of the vast scale of possibilities for early retirement, helped to solve this problem.

The fourth is that it seems that without the pension reform we would not have had the chance to increase the momentum in the development of Polish economy and the strengthening of the Polish stock exchange. There would have been no cumulative financial resources increasing each year, which allowed the growth of investments in the Polish stock market, built the Polish capital market, and increased the strength of the economy.

And fifth, it is worth remembering that this was a social reform which had gained a universal social acceptance by the time it came in force. Remember that the agreement of all social parties, trade unions, employers and government, enabled the implementation of this reform.

These are successes that we should build on. The institutionalized system has been implemented. However, if we seriously want to discuss what to do next, we need to answer the questions related to possible threats or weaknesses.

First of all, from today's standpoint, the beginning of this reform was undoubtedly accompanied by some overly optimistic assumptions on economic growth, or expected rate of return.

What is more, we have realized now that from a certain point of view the investment portfolio is too flat. Flat in the sense that it does not take into account the risks associated with the volatility of the economic cycle, nor does it account for the variability resulting from length of the life-cycle. One of the most important challenges for the economies and societies in the next twenty, thirty years' time will be finding a *modus vivendi* between the cycles of life and the cycles of professional careers. This applies to the labor market, educational systems, quality of life and social security schemes.

In consequence, we should review how - in line with the variable cycle of career development over time, which is the cycle of life - our income changes when we reach the earnings peak and the best opportunity to save. To estimate during which

periods - approaching the time of disbursement of our pension savings - we should have safeguards to create a safer, less risky environment for the investment of our savings.

This is a discussion which has begun in Poland and which is related to the multifunds and B-type funds. We should create a safer portfolio for the latter period of the retirement saving phase. In my opinion coercion should not be applied to such investment. If there are people who believe that aggressive investment during the years just before their retirement is cost-effective for them, they should be allowed to invest aggressively.

I also believe that the level of risk should not be reduced too early. We must carefully consider what the income peaks are during professional careers in different economies, and even in different sectors of the economy, and for people with different types of education. Such a concept makes the patterns and models more complicated because it creates a greater personalized approach on how to invest the money saved by individuals. Nevertheless, the issue of combining the investment and the lifecycle risk is one of the key issues in discussions on further pension reforms today.

Moreover, when we look at the portfolio of Polish pension funds, a game takes place between the State treasury bonds and participation in the stock market or stock companies. The difficult investor year 2008 showed the shift from the risk related with stock exchange toward greater security, which relates to investment in Treasury bonds, very clearly. However, we have a limit of about 20 percent of the possible investment portfolio, of which only around 2 percent is used in accordance with the act. These are financial instruments such as dematerialized public mortgage bonds, domestic banking securities, investment certificates or limited investment certificates, which are minimally used. It is worth considering whether there is a correlation between the need for diversified investment of pension funds and what is happening in the financial market, and the financial instruments that one could invest in.

It also seems that the weakness of our pension reform is the lack of incentives for more widespread saving for old age. I am not referring exclusively to the third pillar, but I would like to point out that if we do not create some additional incentives for individual retirement savings within the coming 20 to 30 years, we will not stimulate the accumulation of capital sufficiently, which is essential for investment in the economy.

The lack of real competition between funds is a great concern. We have built a reference system with the use of internal benchmarks, which makes sure that the results are as flat as possible, therefore when we compare the rate of return on investment of individual pension funds the system does not allow for the emergence of very bad results. Additionally, there is no external benchmark, which is essential for the pension system as a whole, and which might stimulate the most beneficial relationship between the rate of return and the risk incurred. Hence, the debate about the need to create an external benchmark, which has also begun in Poland in recent months, so that while actually measuring the risk of active management one could recommend ways to achieve above-average rate of returns in the market.

We must also realize that regardless of the introduction of pension reform in Poland, a major problem is that a given amount of money is sent to the social security system annually, and therefore the social insurance fund has a lower income from current contributions, because a part of them are transferred to the pension funds. Upon the completion of a multi-year starting operation of the funded pension system these contributions must be supplemented to balance the current pension benefits outlays. For the current year, the quota is of the magnitude of 20-22 billion zlotys. It would not be a great issue, but for the fact that there is a problem with the European Union relations regarding the formal qualification of these expenditures, as they are considered to fall within the area of public finance sector, which has an influence on the level of the financial deficit. We are fighting a battle on this subject with Europe, but it certainly does not help us especially at a time when we would like to consider speeding up the entry process to the Euro zone.

Nevertheless, we have not completed the pension reform yet. We have built a model of two combined mandatory pillars supplemented by an additional voluntary third pillar. However, this system is not universal and does not cover all types of occupations. We have uniform staff, we have mining and some professional groups operating differently, and we have a differently operating system for the agricultural social insurance. Therefore, there are some tasks for the next few years that must be performed, not to fill the gaps in current budgets, but towards open, secure and modern perspectives related to the pension systems for these other occupational groups. As a result, it will be possible to balance the whole actuarial pension system on a much wider scale.

Ladies and gentlemen, I am deeply convinced that the pension reform introduced in 1999 in Poland is one of the most important elements of the Polish economic transformation in the response to all these key issues and challenges related to

combining investment risks, and saving in various stages of the life cycle. How to make the rate of return more resistant to the risks associated with the threats from the cyclical growth of the economy, as well as from the threats of the crisis that we are experiencing now.

I believe that both the Polish participants of this Conference and all those who face similar problems in their countries will leave this meeting richer with new thoughts and, hopefully, better prepared for the implementation of new solutions. The decisions made over the last few months in Poland - related to changes in contribution and management fees - must not end the debate as to what should be done next with the pension system and pension funds.

I have no illusions that these changes made under public pressure, will bring any particular benefits either in the economic or in the social dimensions. The discussion on multifunds, the debate linking the life cycle with the various portfolios of investments selected for the life-cycle, the discussion of external benchmarking and of the increased rate of return under different circumstances, is what may lead us to the increase of the sense of security and economic usefulness of pension funds.

I wish you very successful sessions, a fruitful discussions, and rationality of choices. The pressure of today's crisis is fortunately short-term, and the thought horizon we should apply, while changing the systems by incorporating models of action and risk characteristics, must have a long-term perspective. This must not be forgotten in this debate. Thank you very much.

Michał Boni

Member of the Council of Ministers

Head of Strategic Advisory Team in the Office of the Prime Minister, Poland



PART I

ACCUMULATION STAGE

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- | | |
|--------------|--|
| CHAPTER I. | INVESTMENT PERFORMANCE |
| CHAPTER II. | WHAT'S THE LEVEL OF FINANCIAL RISK THAT A DC FUNDED
PENSION SYSTEM SHOULD TAKE? |
| CHAPTER III. | BUSINESS CYCLES AND PENSION FUNDS |
| CHAPTER IV. | TRENDS IN PENSION FUNDS INVESTMENTS |



CHAPTER I

INVESTMENT PERFORMANCE

DARIUSZ STAŃKO. Pension funds returns: The case of Central and Eastern Europe

DANIEL ARTANA. The financial performance of mandatory pension funds in Latin America

PENSION FUNDS RETURNS: THE CASE OF CENTRAL AND EASTERN EUROPE

DARIUSZ STAŃKO ¹

- ¹ *Dariusz Stańko has an M.A. in Finance and Banking and a Ph.D. in Economics from the Warsaw School of Economics in Poland as well as a Ph. D. in Economics from the University of Osaka in Japan. Dariusz was a consultant to the Chairman of the Polish Chamber of Pension Funds between July, 2004, and February, 2008 and subsequently became the Director of the Department of Economic Analysis and Prognosis in the Polish Ministry of Labor and Social Policies until 2009. Dariusz has also worked as an assistant professor in the Warsaw School of Economics since 1996.*

INTRODUCTION

This research will cover the issue of pension fund returns in the case of Central and Eastern Europe (CEE). The purpose of this analysis is to discuss what the investment performance of pension funds from our region is, i.e. CEE, and also to find possible explanations for such results. The most important question in this context today, is whether the expectations on the funded pensions systems have been met.

The data presented was obtained it from the Sofia Group members, as well as some other countries and various institutions. I would like to thank them all for their cooperation. The analysis covers selected CEE mandatory pension systems, but since I also have some information on voluntary pension funds in Romania and the Czech Republic, I have tried to give a flavour of their investment results as well. I concentrated on average rates of return and semi-gross investment results. This means that, while calculating them, I take into consideration the management fees but do not account for the effect of upfront fees. The horizon of calculations covers the start of a particular pension system's activity until the end of February 2009. I will also discuss the results of the year 2008 as a special case, in the context of current financial crisis.

I. Returns up till end of February 2009

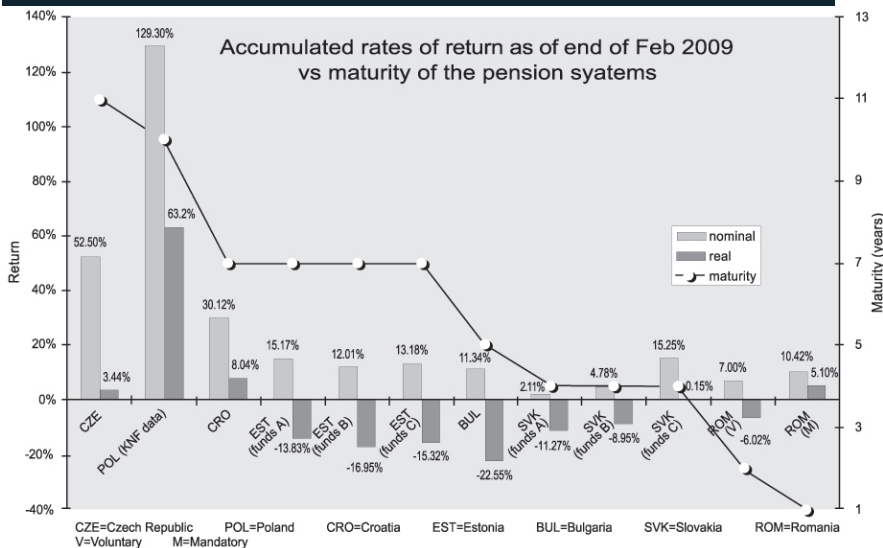
The returns as of the end of February 2009 show that all countries have positive nominal rates of return. However, when we look at real rates of return (see Figure No.1), positive values are present only for a small group of countries, namely Poland, Croatia and the Czech Republic. Figure No.1 presents nominal and real rates of return as well as the average length of the system. Both countries with the longest maturities, like Poland (that has been operating for ten years) and Czech Republic (eleven years) have positive nominal and real rates of return. The other countries' real rates of return (when accounted for

inflation) are, unfortunately, negative - although those countries have positive nominal returns.

We may speculate that this is the effect of the current financial crisis, the disaster or “perfect storm” as some call it. Nevertheless, there seems to be another factor that should also be taken into account. In these countries there was simply not enough time to accumulate buffers for such a financial shock, so the short maturity of the systems may be another explanation for their investment results. A closer examination of the asset allocation of particular countries shows that in countries like Estonia and Romania pension funds’ asset allocation was fairly conservative.

FIGURE NO.1

ACCUMULATED RATES OF RETURN AS OF END OF FEB 2009 VS MATURITY OF THE PENSION SYSTEMS



NOTE: LETTERS A, B, C REPRESENT SO-CALLED MULTIFUNDS OF AGGRESSIVE, BALANCED AND CONSERVATIVE PORTFOLIOS, RESPECTIVELY.
SOURCE: PREPARED BY THE AUTHOR.

Chart No.1 shows the volatility of returns for the period before “the storm” and for the whole calculation horizon. The year 2008 was a remarkable moment. The volatility, measured in standard deviation terms as well as the ratio of the

standard deviation to the average rates of return, doubled or tripled compared to the previous calculation horizon.

CHART NO.1
VOLATILITY OF PENSION FUNDS RETURNS

Country	Period from	Monthly returns volatility			
		Standard deviation (in pp)		Annualized coefficient of variation	
		Until 2007	Until Feb 2009	Until 2007	Until Feb 2009
Bulgaria	July 2004	1.33	2.15	0.434	1.230
Croatia	Jan 2003	2.78	2.67	1.796	3.104
Czech Republic (p.a.)	Jan 1998	1.57	1.83	0.630	0.470
Slovakia funds A	Apr 2005	0.42	0.11	0.348	0.546
Slovakia funds B	Apr 2005	0.34	0.18	0.291	0.439
Slovakia funds C	Apr 2005	0.08	0.11	0.071	- 0.467
Romania mandat.	June 2008	-	0.77	-	0.243
Romania voluntary	Dec 2006	-	1.14	-	0.983
Poland - KNF data	May 2002	2.04	2.38	0.597	1.226
Poland - all funds	June 1999	2.16	2.36	0.613	0.941
Poland - survived funds	June 1999	2.21	2.57	0.623	1.019

NOTE: LETTERS A, B, C REPRESENT SO-CALLED MULTIFUNDS OF AGGRESSIVE, BALANCED AND CONSERVATIVE PORTFOLIOS, RESPECTIVELY.
SOURCE: PREPARED BY THE AUTHOR.

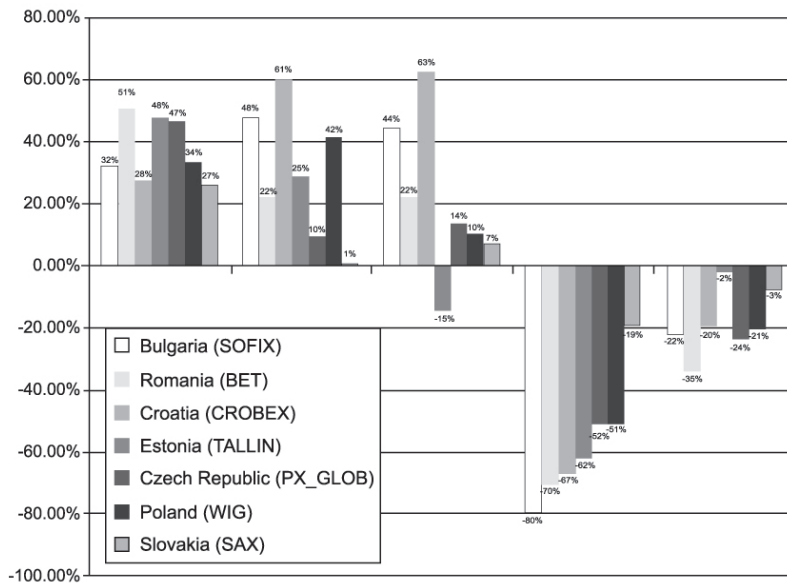
What is also interesting is that Poland and Croatia have tended to have quite significant exposure to stocks, at least compared to other countries in the region². On the other hand the stock investment of the Czech pension industry - that recorded a very small real rate of return - was very low. This is related to the nature of the Czech pension funds. They resemble mutual life insurance companies much more than typical saving vehicles. Their asset allocation is by definition fairly conservative and the mechanism of profit sharing also lowers possible results to be obtained by pensioners. Chart No.2 shows the monthly excess value: the average monthly difference between what was obtained by pension funds and what might result from the naïve buy-and-hold strategy of investing money in an index. Monthly excess values are positive. However, what actually happened in 2008 was the moment of total disaster as indices of some stock exchanges went down from 50% to 70% in nominal terms (see Figure No.2). This situation was not related to peculiarities of CEE region, but was a common, worldwide phenomenon, that can merely serve as a kind of consolation.

- 2 Regarding Poland, the stock exposure of Open Pension Funds (OFEs) during the period of 2000-2008 oscillated around 30% of the portfolio, and since May 2005 began to increase until May 2007 when stock holdings peaked at 38,6% of the portfolio. Following this month, stock allocation was decreasing towards 21% in December 2008.

CHART NO.2
COMPARISON WITH STOCK MARKETS

Country	Period from	Index	Monthly excess value
Bulgaria	July 2004	SOFIX	0.727
Croatia	Jan 2003	CROBEX	0.429
Czech Republic (p.a.)	Jan 1998	PX-GLOB	0.543
Slovakia funds A	Apr 2005	SAX	0.588
Slovakia funds B	Apr 2005	SAX	0.642
Slovakia funds C	Apr 2005	SAX	0.842
Romania mandat.	June 2008	BET	11.027
Romania voluntary	Dec 2006	BET	7.943
Poland - KNF data	May 2002	WIG	0.553
Poland - all funds	June 1999	WIG	0.718
Poland - survived funds	June 1999	WIG	0.724

NOTE: LETTERS A, B, C REPRESENT SO-CALLED MULTIFUNDS OF AGGRESSIVE, BALANCED AND CONSERVATIVE PORTFOLIOS, RESPECTIVELY.
SOURCE: PREPARED BY THE AUTHOR.

FIGURE NO.2
STOCK MARKET INDICES IN CEE COUNTRIES

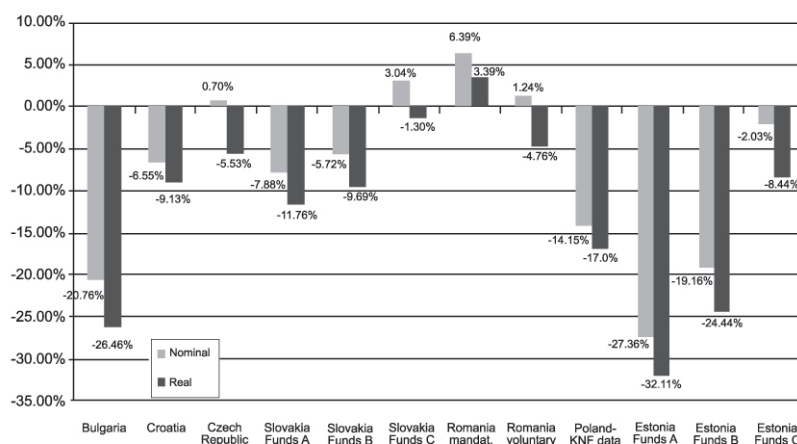
SOURCE: PREPARED BY THE AUTHOR.

II. IMPACT OF THE FINANCIAL CRISIS ON THE PENSION FUND INDUSTRY

i) Investment returns

Figure No. 3 shows what happened to pension industries in 2008 in nominal and real terms.³ As one can see, CEE countries experienced huge losses. The only exclusions to this case were the pension funds in Romania and Slovakia.

FIGURE NO.3
PERFORMANCE OF SELECTED CEE PENSION FUNDS IN 2008



NOTE: LETTERS A, B, C REPRESENT SO-CALLED MULTIFUNDS OF AGGRESSIVE, BALANCED AND CONSERVATIVE PORTFOLIOS, RESPECTIVELY.
SOURCE: PREPARED BY THE AUTHOR.

3 Fund A stands for the most aggressive; Fund B is the balanced fund, and Fund C stands for conservative fund.

Chart No. 3 shows that before the financial crisis most of the pension funds followed quite conservative investment strategies, if measured in a very simple but informative way, i.e. the exposure to stock. The stock holdings in most of these countries very rarely exceeded 20%. As has already been mentioned, the Polish, Bulgarian and Croatian systems represent a group with somewhat more aggressive investment policies. The risk taken by pension fund managers in various countries with regard to the volatility of stock markets, i.e. their beta values⁴, is not that large. Again, Poland is characterized by relatively high betas, while other countries followed very conservative strategy with low equity investments.

CHART NO.3

INVESTMENT POLICY AND LIMITS: IMPACT ON PENSION RESULTS

Country	Index	Period from	Beta	Approx. stock holdings in 2007	Legal stock limits in 2007
Bulgaria	Sofix	Jul 04	0.150	30%	20% + 5%
Croatia	Crobex	May 02	0.131	> 15%	30%
Slovakia - fund A	Sax	Apr 05	0.078	14-20 %	80%
Slovakia - fund B	Sax	Apr 05	0.064	11-16%	50%
Slovakia - fund C	Sax	Apr 05	0.004	0%	0%
Romania - mandatory	Bet	Jun 08	0.001	10%	50% + 5%
Romania - voluntary	Bet	Dec 07	0.001	-	50% + 5%
Poland - KNF	WIG	May 2002	0.316	35-40%	40% + 20%
Poland - all funds	WIG	June 1999	0.302		
Poland - survived funds	WIG	June 1999	0.302		

Note: Bulgaria's limit for stock represents 3 categories of shares: shares of companies investing in real estates (limited to 5%), shares of collective investment schemes – mutual funds or investment companies (15%) and other shares (20%). All these 3 kinds of shares were at their peak at Sept. 30, 2007 when they reached 31,49% of the portfolio. Because of the rapid rise of the Bulgarian Stock Exchange indices during the years prior to this date a few pension funds found themselves in breach of the 20% limit and had 3 months to comply with the limit.

SOURCE: PREPARED BY THE AUTHOR.

ii) Sharpe ratios

Calculating investment returns is not, of course, the only way to analyze the performance of pension systems. I followed the approach of Professors

⁴ The Beta Coefficient in terms of finance and investing is a measure of the systematic risk of a stock or portfolio. It quantifies relative volatility in relation to the overall market, which is defined as having a beta of 1.0.

Eduardo Walker and Augusto Iglesias, and I computed modified version of Sharpe ratios. The Sharpe ratio is a measure that takes into account the risk assumed by particular investment institutions. Thus, basically it is the risk-adjusted performance evaluation measure. The Sharpe ratios⁵ calculated until end of February 2009 (see Chart No.4) had negative values in most of the analyzed countries when compared with the local short-term rates like, for instance, WIBOR, ZIBOR or TALIBOR⁶. Additionally, the Sharpe values were negative when using the rates of return from investing in local bonds, or in the US long-term bonds as the reference. A negative value of the Sharpe ratios does not really provide interpretable information. It simply indicates that something is wrong with the efficiency of investment or that the interest rates environment is not typical. In this particular context, calculated values do not confirm that the investment strategy was wrong, because one has to take into account the extraordinary case of the 2008 financial crisis.

If we shorten the calculation horizon until the end of 2007 (see Chart No.5), which is more or less the moment where the situation at the stock market was still stable, we can observe that the Sharpe ratios change very dramatically. Generally, investment strategies of pension funds in risk adjustment terms tended to be much more efficient than investing in local government treasury bonds or unhedged US long-term treasury bonds. The latter hypothetical scenario ("unhedged US bonds") assumes that the pension savings are invested in US dollars and kept. The value of the portfolio thus depends thus on the current exchange rate of the local currency.

The Sharpe ratios were positive in practically all cases (with the exclusion of Croatia and the Czech Republic) when pension portfolios were benchmarked with local short-term rates. When comparing these to long-term US bonds with hedged currency risk, the Sharpe ratios are very positive in all the analyzed countries except Slovakia and Croatia.

5 The Sharpe ratio is a measure of the excess return (or risk premium) per unit of risk in an investment asset or a trading strategy. It is defined as: where R is the asset return, R_f is the return on a benchmark asset, such as a risk free rate of return, and $s = \frac{R - R_f}{\sigma}$ is the standard deviation of the asset excess return.

6 Warsaw Interbank Offered Rate, Zagreb Interbank Offered Rate, Tallin Interbank Offered Rate.

CHART NO.4

Until end of Feb 2009		Annualized Sharpe Ratios			
Country	Start at	Local short	Local bonds	US long bonds (hedged)	US long bonds (unhedged)
Bulgaria	July 2004	0.212	none	0.468	0.326
Croatia	Jan 2003	0.304	0.539	0.292	0.047
Czech Republic (p.a.)	Jan 1998	0.265	none	none	none
Slovakia funds A	Apr 2005	0.989	0.577	0.625	0.098
Slovakia funds B	Apr 2005	0.956	0.494	0.580	0.065
Slovakia funds C	Apr 2005	0.169	0.001	0.386	0.077
Romania mandat.	June 2008	0.766	0.034	0.361	3.445
Romania voluntary	Dec 2006	1.718	0.873	0.380	0.588
Poland - KNF data	May 2002	0.122	0.087	0.117	0.058
Poland - all funds	June 1999	0.010	0.054	0.049	0.034
Poland - survived funds	June 1999	0.002	0.041	0.052	0.843

SOURCE: PREPARED BY THE AUTHOR.

CHART NO.5

Until Dec 2007		Annualized Sharpe Ratios			
Country	Start at	Local short	Local bonds	US long bonds (hedged)	US long bonds (unhedged)
Bulgaria	July 2004	1.618	none	0.391	0.729
Croatia	Jan 2003	0.021	0.617	0.081	0.543
Czech Republic (p.a.)	Jan 1998	0.154	none	none	none
Slovakia funds A	Apr 2005	0.450	0.436	0.292	0.672
Slovakia funds B	Apr 2005	0.473	0.424	0.311	0.667
Slovakia funds C	Apr 2005	0.518	0.334	0.387	0.642
Romania mandat.	June 2008	none	none	none	none
Romania voluntary	Dec 2006	none	none	none	none
Poland - KNF data	May 2002	0.881	0.679	0.340	0.719
Poland - all funds	June 1999	0.405	0.401	0.398	0.577
Poland - survived funds	June 1999	0.404	0.401	0.400	1.604

SOURCE: PREPARED BY THE AUTHOR.

Comparison of both charts shows that when analyzed until February 2009 (see Chart No.4), pension fund strategies look much worse than the so-called risk-free strategies, but when excluding the effect of financial crisis (see Chart No.5) in most cases pension funds have produced added value.

iii) Accumulated real returns for various cohorts

Another type of analysis might be made by calculating the real rate of return for a particular member (see Figures No.4 - No.15). Let us assume that some person joined a pension fund in January 2003. The accumulated return for this person is the change in investment units between the beginning of 2003 and the present moment.

The calculations show that real rates of return for each cohort have been mostly negative in all countries except Poland. In this case, these rates are positive for all persons who became members of the Polish mandatory pension system in 2005 or joined it earlier (see Figure No.12).

The same results applied to the mandatory pension system in Romania (see Figure No.10) and the voluntary system in Czech Republic (see Figure No.6), provided that savers entered the system in 2003, or earlier. However, when looking at the latest cohorts, the situation naturally becomes much gloomier because the biggest losses were experienced by the cohort joining in 2009. These members entered funded pension systems at a very bad time. Regarding the 2008 cohort one can see results ranging from -30% to -25%. This applies to Estonian aggressive and balanced funds (see Figures No.13-14), Bulgarian pension funds (see Figure No.4) and also Poland (see Figure No.12).

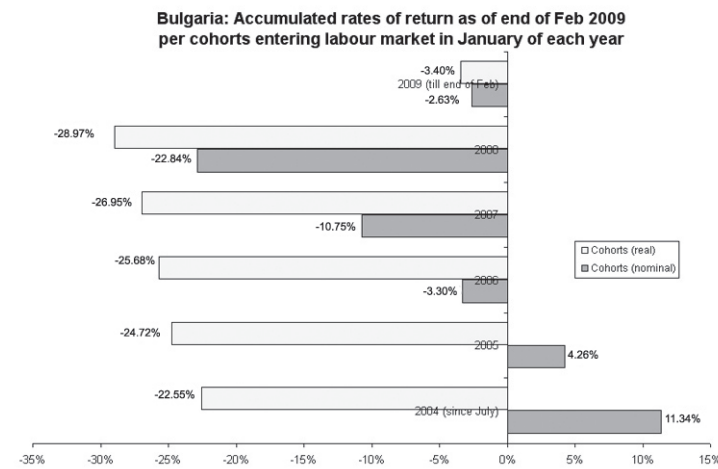
The so-called “average group”, for which the results were not that bad, is also highlighted in this document. This group includes Croatia and aggressive funds of Slovakia (see Figures No.5-7). What is interesting is the situation of people who entered the system in 2008 and saved in conservative funds. They too suffered losses in real terms, so we might say that being in the conservative funds for a short time in 2008 was not a great help.

Next, let us look at early cohorts of 1998 and 1997. They have managed to accumulate enough assets so that even after being hit by the 2008 disaster they still have positive results. For cohorts entering a little bit later in 2002 and until 2004, the situation deteriorates. Basically, this particular cohort, shows the worst results. Again, we have tried to point out some of the groups with the most negative average. There is also a positive group in the medium cohorts, such as the case of Croatia and Poland (see Figures No.5, 12), and the cohorts joining in 2005 and beyond. Their situation is relatively different. Naturally, one has to bear in mind that a person who entered the pension system in 2005 usually has a perspective of at least thirty or forty years of savings, so the current results do not really apply to the situation of those individuals.

For illustrative purposes we can look at the special case of Poland (see Figure No. 12). For cohorts of 2006 and beyond, the results are already negative, but this also implies that the saving for a long period of time can, to some extent, ameliorate a situation when such crisis like this occurs. The pension fund results, while analyzed until end of February 2009, were not satisfactory in

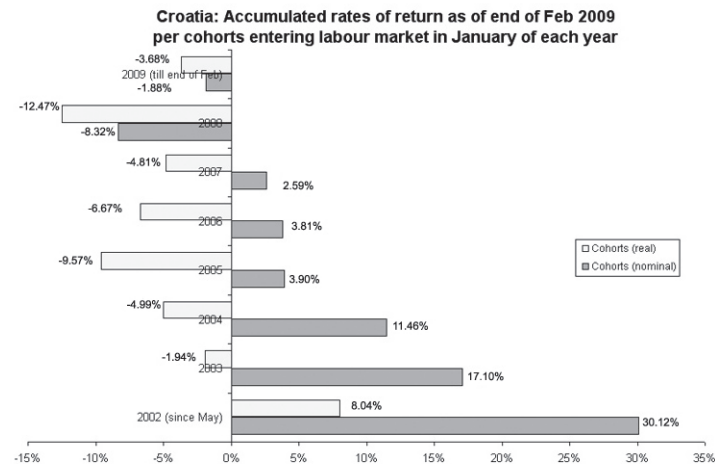
real terms, however this was a very special moment and one cannot treat them as a typical performance evaluation study conducted in a more or less stable framework, given the impact of the financial crisis. Paradoxically, the low stock exposure in the years preceding the 2009 crisis is an additional factor for the relatively poor results.

FIGURE NO.4



SOURCE: PREPARED BY THE AUTHOR.

FIGURE NO.5



SOURCE: PREPARED BY THE AUTHOR.

FIGURE NO.6

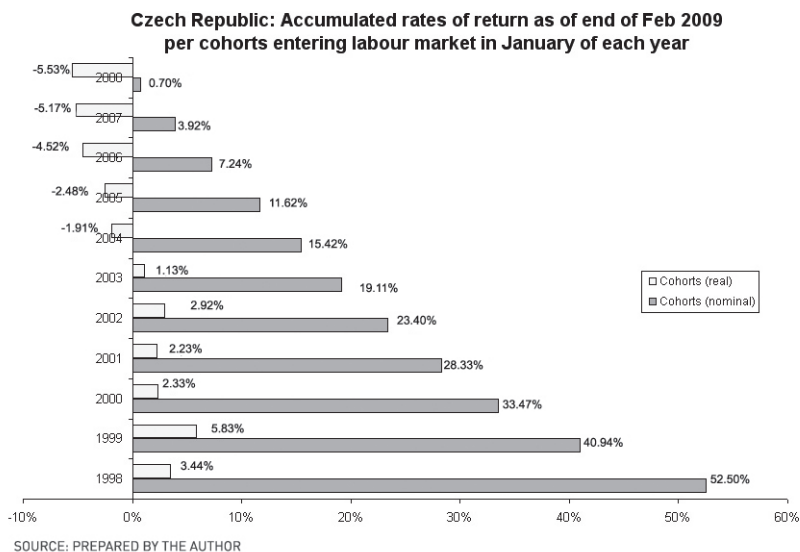


FIGURE NO.7

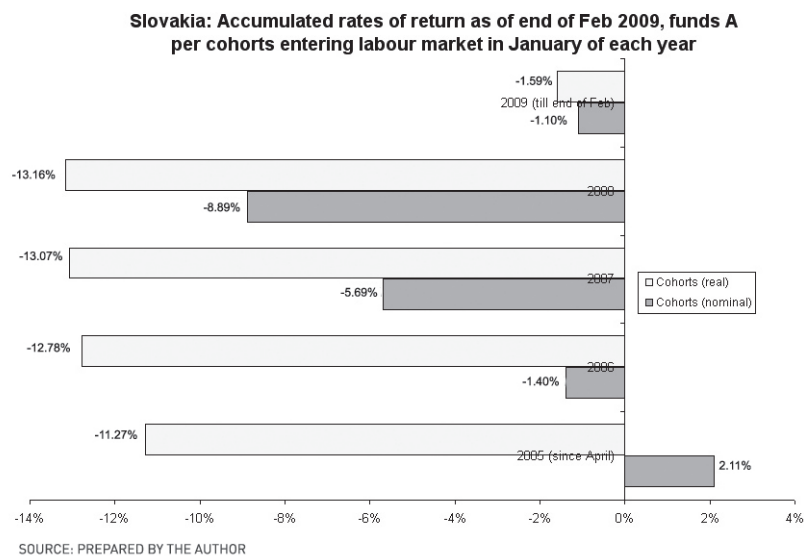


FIGURE NO.8

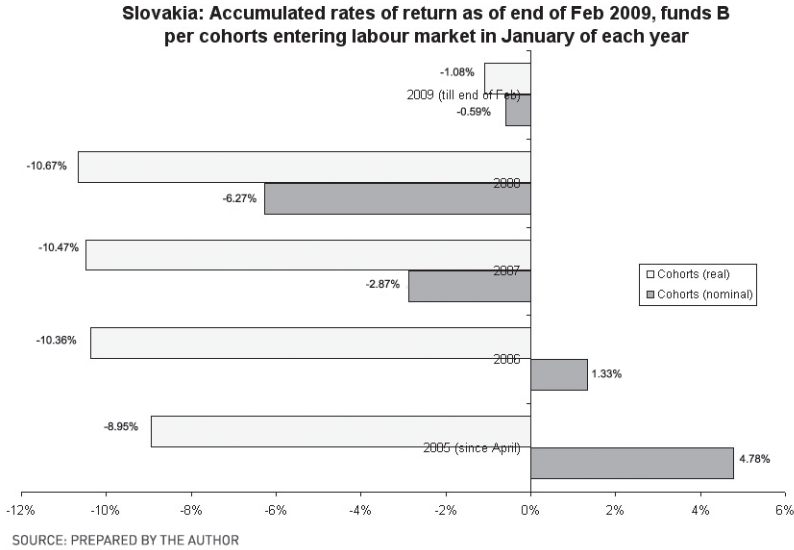


FIGURE NO.9

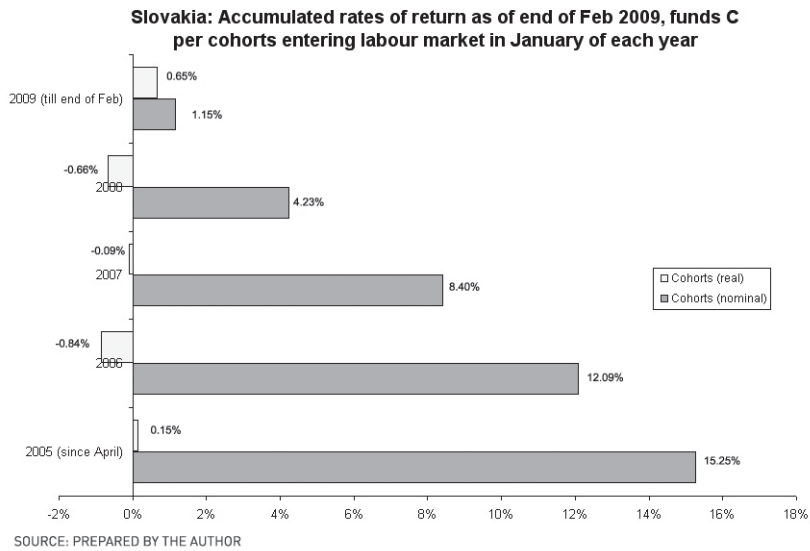


FIGURE NO.10

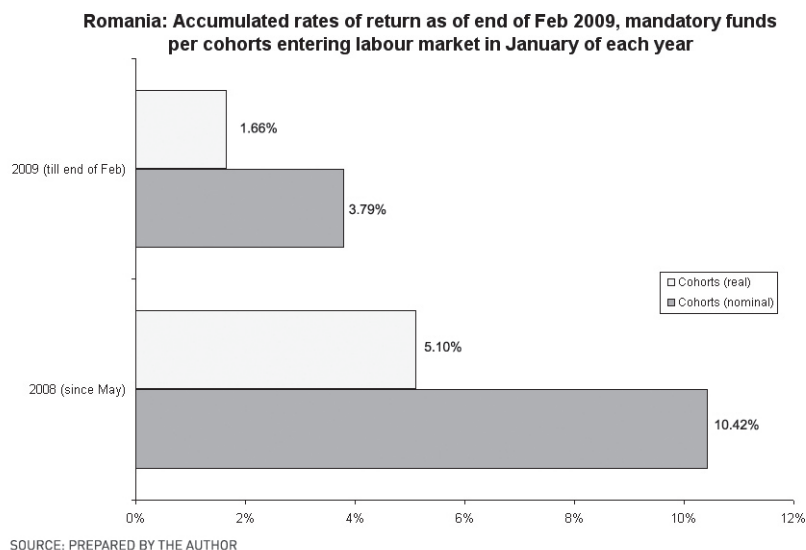


FIGURE NO.11

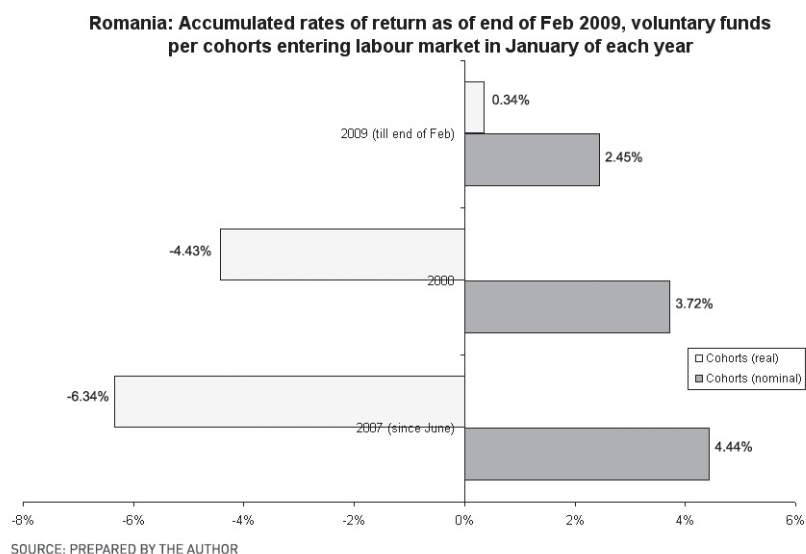


FIGURE NO.12

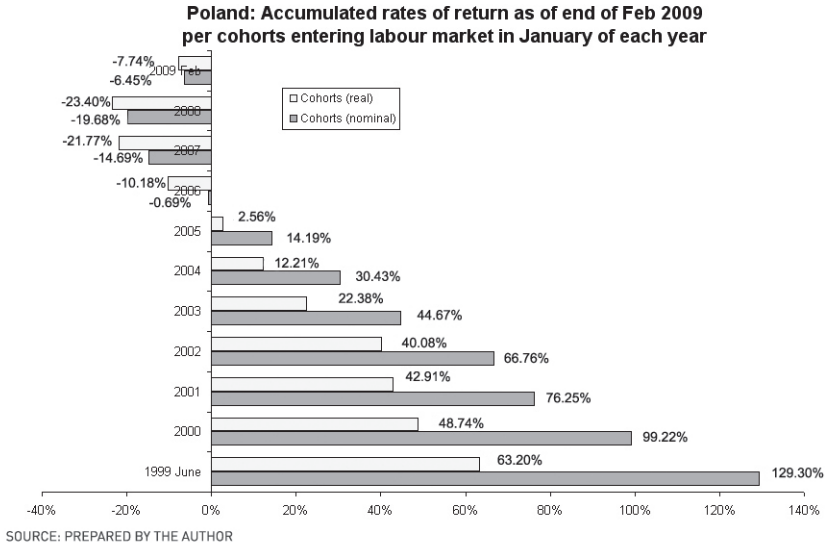


FIGURE NO.13

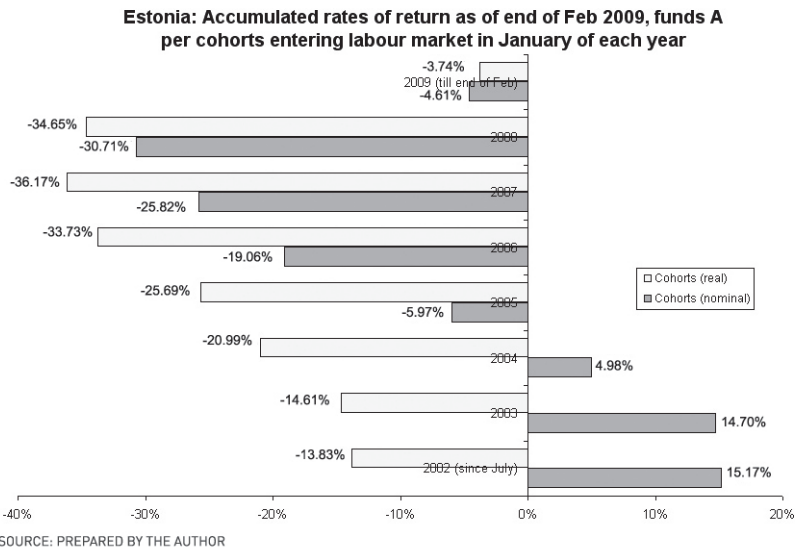


FIGURE NO.14

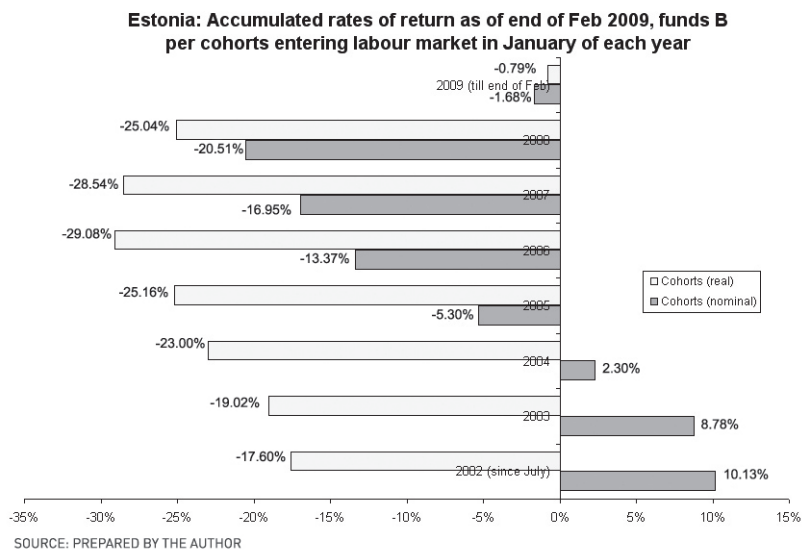
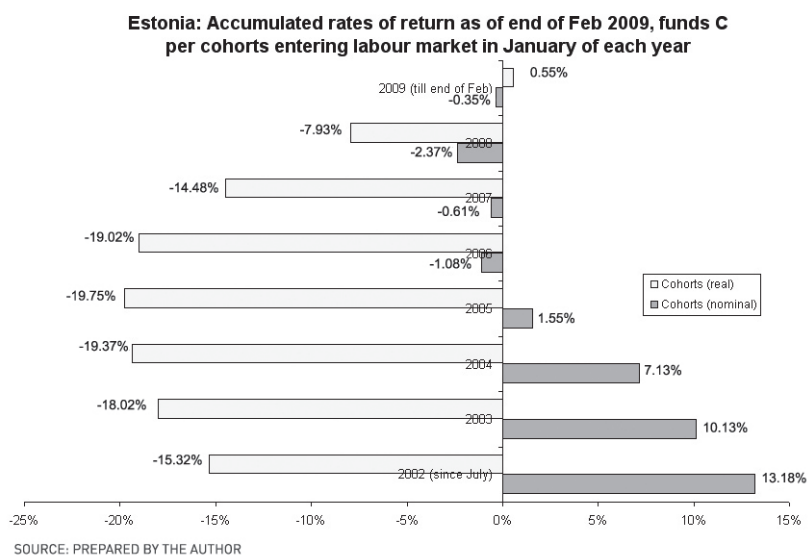


FIGURE NO.15



III. GENERAL ASSESSMENT AND POLICY RECOMMENDATIONS

As of the end of 2008, pension funds were, on average, able to produce added value when compared to risk-free strategies. Financial theorists on empirical studies usually take as the risk-free benchmark, some short-term default-free rates of return. Since we analyse pension systems that represent very long-term investment processes, we should try to seek some long-term, risk-free, alternatives. These can be long-term bonds. Professor Viceira suggests introducing inflation-indexed long-term bonds. It would be interesting to compare pension funds performance versus that investment vehicle.

The market needs time to recover and what we have noticed in recent months suggests that there has already been a slight recovery in the financial markets. It would be interesting to see what the change of the accumulated rates of return will be if we extend our calculations beyond the analysis reported in this document.

The results of this study suggest that the main drivers of pension funds' performance are related to the investment limits defining the choice of investment managers. However, one can also observe that in many cases the investment ceilings were in fact much higher than their actual usage. The ability to use the time diversification feature of pension funds is very important, and investment limits and performance evaluation systems should encourage the fund managers to use it.

One of the explanatory variables for the results of the CEE pension systems was their maturity. From a particular member's point of view it was the moment of the system. I have already said that the conservative funds did not seem to be the solution, even if one kept his money for the whole analysed period. It is kind obvious that such strategy does not really provide much guarantee in the case of the financial storm we are still experiencing. Perhaps it is wiser for a future pensioner to invest pension savings more aggressively in the long run, and then switch to conservative funds before the retirement age.

Although life cycle funds are the key issue now, the conservative funds might not be a magic solution to all problems. The solution is much more complicated.

The tasks that we have to face are how to construct a default fund; what the asset allocation for each society should be, bearing in mind the differences

in behavioural patterns; and, what should be the length of the safety pre-retirement horizon. There is a risk that we set up conservative funds and make people switch to bond portfolios, for instance, 10 years before their retirement. However the situation in the capital market in the 10 year period may turn out to be very good, and then we might have a real political issue with people complaining that they were not given the opportunity to take advantage of the positive market trends. The question regarding life cycle funds and conservative portfolios boils down to the problem of how to ensure the availability of proper switching mechanisms for fund members.

One of the things that should not be neglected with mandatory pension funds – we are talking about their investment results – is the need of constant education of the public and media about the nature of pension investment. We need to inform about issues such as equity premium and the risks of long-term investment. This knowledge is indispensable when making investment decisions. Multifunds imply more decisions to be made by fund members. They also represent one of the most important topics while talking with the politicians and explaining the nature of the pension system. The current task is to make people understand the nature of long-term investment. We need to help them to understand that even though pension systems suffered negative results in 2008 it does not mean that funded pension systems do not work.

Finally, more elastic investment limits should be introduced. Even though I am specially referring to the case of Poland, I believe it also applies to other countries in the region. It should be introduced in some kind of package, for example, together with reforming statutory performance evaluation of pension funds in the CEE region.

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ANNEX: DATA AND METHODOLOGY

Data:

1. **Sofia Group members inquiry, correspondence with institutions, literature and Internet search on:**
 - a) Pension funds units or returns.
 - b) TBills and TBonds yields.
 - c) Local stock and bond indices, US bond indices.
 - d) CPI, pension fees, stock market capitalization etc.
2. **Pension funds returns: industry averages (usually market share weighted average)**

Methodology:

1. **Pension returns calculation**
 - a) Weighted market share averages; not lagged aggregate weights (Walker, Iglesias, 2007: 10) – difference should not be important yet (short time horizon).
 - b) Survivorship bias effect acceptable (Polish OFEs: 0,54 bps 1999-Feb2009 for simple averages).
 - c) Discrete, compounded.
2. **TBills and TBonds yields**
 - a) Wealth index as discussed in Walker, Iglesias (2007: 7).
 - b) US long bonds – hedged and unhedged versions.
3. **Stock returns**
 - a) Price-weighted index (RO, CR) vs value-weighted (BG, SLO, POL, EE) with dividends effect included.
4. **Risk-free rate benchmarks**
 - a) Classical short-term rates (ex. WIBOR3M)
 - b) Long-term rates (Walker, Iglesias, 2007)
 - c) Long-term local bonds if available
 - d) US long bonds – hedged and unhedged versions
5. **Sharpe ratios (Sharpe, 1994) – volatility of excess returns**

6. Risk measures

- a) Standard deviation of returns
- b) Beta values against stock indices

7. Benchmarks for pension funds

- a) Stock indices dived by 50-80% in 2008
 - Price-weighted index (RO, CR) vs value-weighted (BG, SLO, POL, EE) with dividends effect included
- b) Risk-free rate benchmarks
 - Classical short-term rates (ex. WIBOR3M)
 - Long-term rates (Walker, Iglesias, 2007)
- i. Long-term local bonds if available
- ii. US long bonds – hedged and unhedged versions

THE FINANCIAL PERFORMANCE OF MANDATORY PENSION FUNDS IN LATIN AMERICA

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I. INTRODUCTION

The objective of this document is to share some views on how the pension fund administrators (PFAs) have performed as asset managers in Latin American Countries (LAC).

Following is an analysis of several papers that do not cover the recent crash in returns. We all know that it is not proper to look at the performance of pension funds in the short term, taking into account that they administer for future pensions.

A year or a year and a half of bad performance is not relevant to project the pension a worker is going to receive at retirement age.

We will address the problems to assess the results of the PFAs as asset managers, and what we know about how they performed in LAC since their inception. We will also discuss some of the problems that we believe are in the papers on this issue, as well as some evidence on fees and investment in non-financial assets. Finally we will conclude with some policy recommendations or suggestions on these issues.

II. THE CHALLENGES IN EVALUATING THE PERFORMANCE OF PFAs

i) Constraints on investment decisions

It is hard to measure the performance of pension funds because they have constraints on the investment decisions that they to make. Basically, they have draconian regulations that limit their freedom to invest in different asset classes and also in individual asset classes. There are constraints in most countries in the region. In LAC, there are limits on how much you can invest in specific stock. In many countries you cannot exceed - for example - 5% of the total stock of the company. Taking into consideration these restrictions when we look at the performance of the PFAs we are looking at executives that make decisions based on the best possible alternative for their affiliates taking into consideration that they have to comply with these restrictions.

We know there is an earlier paper by Srinivas & Yermo (1999) in which they conclude that the costs of regulations in the case of Argentina, Chile and Peru have not been so relevant. However, Bernstein & Chumacero (2003), and other papers in other LAC, find that regulations are costly. In the case of Chile, Bernstein & Chumacero find that the regulations were equivalent to a tax of 5% of the theoretical final wealth of the worker, which is very high.

Although there is evidence that regulations in practice might be costly - at least in the case of Argentina (Chisari & Dal Bó, 1996) - in theory, pension funds can exploit the correlations of individual assets within each asset class to undo the cost of the regulation limits that are imposed on them.

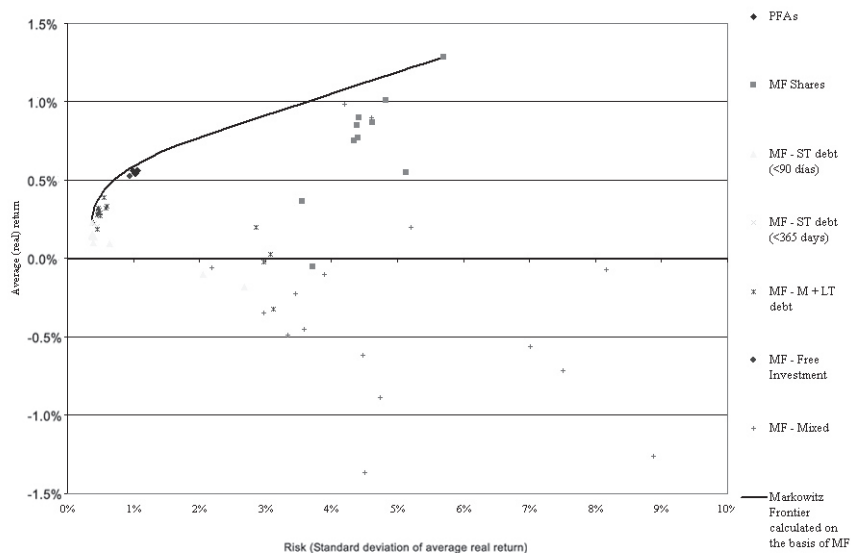
Therefore, in theory it is possible - and there is evidence in the case of Argentina - but as local markets are not very deep, and they are usually small, the pension fund administrators have limitations to overcome the cost of regulations.

Tapia (2008) basically tries to evaluate this same theory. He develops a theoretical or ideal Markowitz efficient frontier. Markowitz frontiers are the frontiers that you create looking at the return and the volatility of the return; or the standard deviation of that return. Obviously, if you are in the frontier you are doing the best you can, given your market performance. The problem with this kind of study is that one is looking at ideal Markowitz efficient frontiers.

Auguste & Artana (2006) try to eliminate the problem, by looking at the performance and comparing it with the "ideal" portfolio, benchmarking the rest of the market's portfolio. Basically, there are a lot of mutual funds that specialize in equity, in bonds, or open funds, and we can create an efficient Markowitz frontier by looking at what can actually be done in practice. There is a low frequency bias for some assets as well as operating costs to consider because in LAC markets there are liquidity constraints. Basically, we are looking at what you can do in practice, and not with ideal portfolios. We found that in Chile and Peru, PFAs performed well, a conclusion that differs from Tapia's when he looked at those ideal decisions.

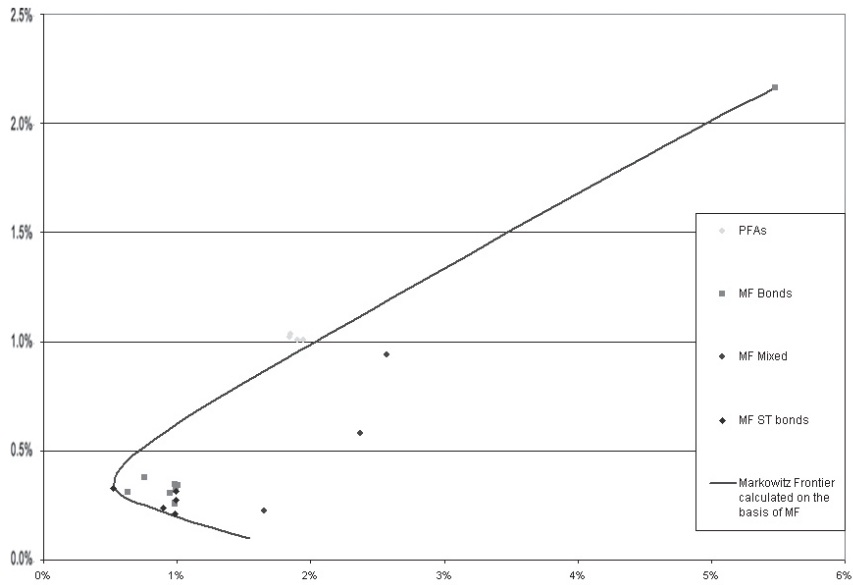
FIGURE NO.1

CHILE: RISK-RETURN RATIO FOR PFAs AND LOCAL MUTUAL FUNDS
REAL RETURNS IN CHILEAN PESOS, MONTHLY DATA FOR THE PERIOD DEC.2000-
DEC.2005



SOURCE: AUGUSTE & ARTANA (2006).

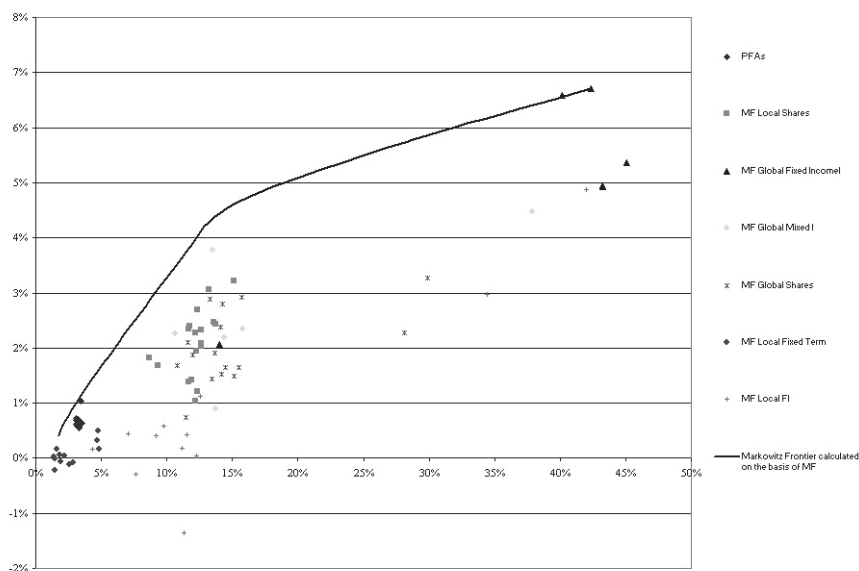
FIGURE NO.2
PERU: RISK-RETURN RATIO FOR PFAs AND LOCAL MUTUAL FUNDS
REAL RETURNS IN NUEVOS SOLES, MONTHLY DATA FOR THE PERIOD DEC.2000-
DEC.2005



SOURCE: AUGUSTE & ARTANA (2006).

FIGURE NO.3

ARGENTINA: RISK-RETURN RATIO FOR PFAs AND LOCAL MUTUAL FUNDS
REAL RETURNS IN ARGENTINE PESOS, MONTHLY DATA FOR THE PERIOD DEC.2000-
DEC.2005



SOURCE: AUGUSTE & ARTANA (2006).

Figures No.1, No.2 and No.3 show the Marcowitz efficient frontier for Chile, Peru and Argentina, respectively. As you can see, in the case of Chile, Peru and Argentina, PFAs are in the frontier built based on the performance of local funds.

ii) Problems with the data

In all these studies there are problems with the data. Besides, in some cases we may have restrictions on data because the markets are not very deep and we do not have any mutual funds as in developed economies. First, in some of the countries in LAC, not all the funds are marked to market. When that happens, you have a distortion in what you are valuing, based on the comparison you are making, especially when you compare against mutual funds that, in all cases that I know of, are forced to value their portfolios marking to market.

The second problem is that you have to be careful with what you are comparing, to compare pears with pears. The pension fund administrator's returns are calculated by the gross of the fees that they charge the worker and, depending on the country, these are gross or net of the expenses that you have to operate in the market. In the case of mutual funds, the returns they show are net of fees and operating expenses. When you look at passive indexes that replicate the market index, those indexes are gross of both, so in some cases you have to make calculations to compare, as I said before, pears with pears.

iii) Problems with the performance's assessment

There is also a discussion on how to evaluate the pension fund's performance. Most are using Sharpe ratios to do that, or index of returns adjusted by risk, but there is some discussion in the literature indicating the need to look at other moments in the distribution of returns, although there are not many studies that have attempted to do that.

Walker & Iglesias (2007) look at the return's excess per unit of risk, in relation to risk-free assets. They also mention that they made a joint analysis of performance of the pension funds and regulations; they cannot discern if the performance results were because the PFAs were successful in managing the worker's money, or because the regulations help them to achieve that result. Basically, what they found in their paper was that in Latin American countries, the PFAs did well compared to the short-term risk-free assets, but not well compared to the long-term risk-free assets. They show some evidence for Argentina, Chile, Mexico and Peru, that the PFAs were able to produce positive Alphas (comparing the weighted average portfolio of indexes, with the PFAs' weights). Nevertheless, they cannot distinguish if this was because of better efficiency or because the regulations helped the PFAs to achieve those Alphas.

In relative contrast to this finding Tapia (2008) found that there is a poorer performance in Argentina, Chile and Mexico when you look at an ideal efficient portfolio. An option to eliminate part of this problem is something that is called the "Characteristic based studies". Basically, what is done is to try and replace part of the return of the sub asset class, with the return of the mutual funds, in the same country specialized in that asset class. For example, you replace the return that the PFAs obtained in equities, with the return of mutual funds specialized in equities in the same market that you are analyzing.

This is a study that was carried out in the United States in order to analyze the performance of funds in that country but you can replicate the same study for the PFAs in Latin America. The advantage is that you are comparing with administrators who are making decisions in the same market. Therefore this is not a theoretical decision;

you are not creating an ideal portfolio that possibly cannot be achieved. The limitation is that PFAs have a different objective. Their future results are different from what you expect from mutual funds that focus in delivering short-term returns for the people who decided to invest money in them. In some cases, the mutual funds are forced to maintain some liquidity and maybe face additional restrictions compared to the PFAs.

Srinivas & Yermo (1999) basically replaced - in part - sub asset classes by mutual funds or by indexes, and they found that the PFAs performed better in several LAC, obviously adjusted by risk. They also found that there is evidence of herding.² However, there are some problems in the way they conducted their study. First, they do not address valuation problems in Argentina; and secondly, they ignore that indexes cannot always be replicated. Auguste & Artana (2006) tried to improve that study and found that, both in Peru and in Chile, PFAs did relatively well when you compare them with a theoretical portfolio; but less so against professional asset managers, such as the mutual funds did in the same countries.

iv) Limits on investments abroad

Another discussion arises with the issue of whether limits on investments abroad damage or help the situation of workers in terms of their future pension. Again, there is a paper by Yermo (2004) showing that those restrictions create a problem: they are costly for the worker. However, even though I agree with the conclusion of the paper there are some problems. There are issues in the way that Yermo calculated the returns. In the case of Argentina, for example, he did not properly address the problem of that part of the portfolio of the PFAs that is not marked to market and, in some cases, he is just comparing returns that are not adjusted by risk.

v) Evidence of persistence

Another thing that is clear in the literature in the region is that there is persistence. What is persistent is that some PFAs are achieving high returns on a consistent basis, that is, some are doing better than the rest. In the case of Chile, there is some evidence that the medium-size PFAs tend to be better than the others. Auguste & Artana (2006) came to the same conclusion, that in general there is persistence in Argentina and Peru and also in Chile, although not in the case of Colombia.

2 *Herding is when everybody follows the leader and the returns are not very different from the average returns.*

vi) Ignoring of other assets classes

The money that workers have in the PFAs is only one of the various assets available. Professor Viceira talked about human capital that is an important kind of asset. Another important asset, especially in LAC, is the real estate asset. The issue is that the optimal investment decision looking only at the pension financial wealth, is surely different when you take into account the human capital or other assets, and therefore so as there is not one size fits all. This is a theoretical support of multifunds being a good idea.

III. SOME EVIDENCE ON FEES AND INVESTMENT IN NON-FINANCIAL ASSETS

Auguste & Artana (2006) found some evidence that the fees that the PFAs charged are not explained by differences in performance. Basically, the most “expensive” PFAs are not necessarily the best as asset managers.

Moreover, the authors found (in the case of countries with good information on real estate prices), that there is a negative correlation between changes in real estate values p and PFAs’ returns. Looking at the performance from the workers’ side, there is some evidence that the ranking in Argentine PFAs is modified when workers have some assets like real estate.

IV. CONCLUSIONS AND POLICY IMPLICATIONS

PFAs in LAC region, in my view, did relatively well as asset managers. There is some evidence that PFAs exploit the possibilities inside each asset class to reduce the burden of the draconian regulations, which the regulators decided to introduce to their ability to select assets. We can say that there are some regulations that may be costly (in terms of lower risk-adjusted returns), and some others may even help. Clearly we need more studies to check if those restrictions are costly or not, although we believe that on average the asset managers did relatively well.

Obviously what we care about is the accumulated return at the age of retirement and basically all these studies are looking at historical returns. So, in essence, maybe we are not answering the right questions for the worker, but unfortunately until we have more and more workers getting pensions from the PFAs, it will be difficult to come to more definite conclusions.

Moreover, it is important, in my view, to effect an indepth study of the correlation with other assets and the returns net of fees.

Finally, I'd like to emphasize that both theory and practice suggest that multifunds, as they are used in Chile, Mexico and Peru, are a good idea not only in normal times but especially in times of turbulence, because they protect workers from suffering a huge reduction in the pension that they will receive for the rest of their life.

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CHAPTER II

WHAT'S THE LEVEL OF FINANCIAL RISK THAT A DC FUNDED PENSION SYSTEM SHOULD TAKE?

EDUARDO WALKER. Risk and pensions

RISK AND PENSIONS

EDUARDO WALKER ¹

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INTRODUCTION

This paper considers a life-cycle perspective of risk. This perspective perhaps is of particular interest to policymakers and is aimed at a better understanding of the meaning of risk, and also to clarify what risk is not. The analysis is performed in the context of long-term asset allocation. To clarify our objectives, we note the following:

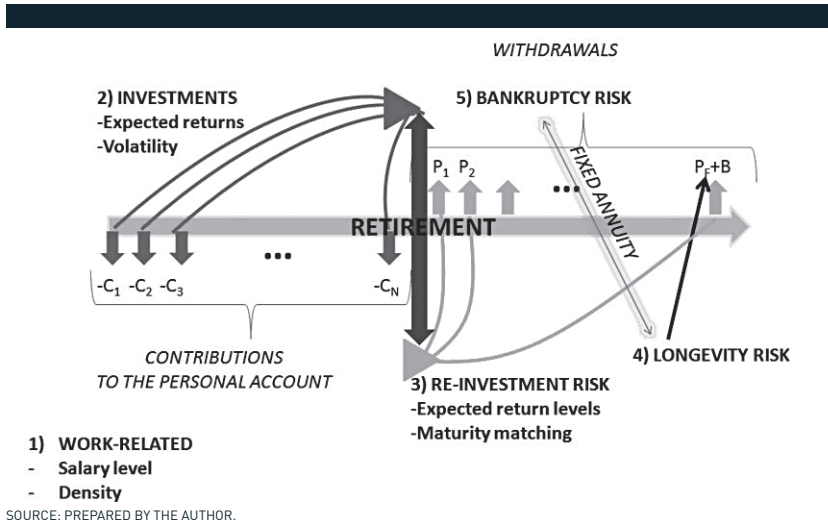
- (i) The focus is on pensions upon retirement, without taking directly into account other kinds of benefits related to the pension systems (like disability and survivorship insurance).
- (ii) The analysis does not explicitly consider other guarantees (like minimum pensions, options of returning to the old system, other pillars, etc.).
- (iii) We set aside the political risks faced by pension systems.

The document is structured in the following way. First, the paper describes the general risks in the pensioner's life cycle. Then, it discusses the role of human and financial capital, and whether labor risk can be hedged. Third, it shows what the probability distribution of the replacement ratio (pension/final salary) looks like under different scenarios, and the factors involved. Fourth, the paper presents an application with data from Chile, allowing us to assess the incremental effect of a portfolio change on the shape of the replacement ratio's probability distribution. The document ends with the main conclusions and policy recommendations.

I. GENERAL RISKS IN THE PENSIONER'S LIFE CYCLE

In Defined Contribution (DC) pension systems there is a period of contributions to the personal account, then comes the moment of retirement and after there are withdrawals from the accumulated savings (see Figure 1).

FIGURE 1
FIVE LIFE-CYCLE RISKS FOR A PENSIONER IN DC PENSION SYSTEMS



The pensioner can identify five life-cycle-related risks in DC systems:

- (i) **Work-related risks.** These are related with the salary (and thus contribution) levels, and the contribution density, related to unemployment or self-employment. Evidently, a sudden decrease in the salary level or a period of reduced contribution density due to self-employment, or unemployment, will negatively affect the cumulative savings.
- (ii) **Investment risk.** During the accumulation period contributions are invested in order to increase final wealth. In this context, risks are related with investment volatility and also with the level of expected returns.
- (iii) **Re-investment risk.** Upon retirement, the accumulated savings have to be transformed into a pension. The pension level achieved for a given level of accumulated savings depends on the level of interest rates that will exist upon retirement. So there is re-investment risk. This risk is also present when there are insufficient long-term fixed income instruments, which causes a mismatch between the duration of assets and liabilities. Therefore there will be reinvestment risk if at retirement the expected returns are low or if there are no long-term instruments in the same currency that the pensioner needs his/her pension.

- (iv) **Longevity risk.** This risk consists in “outliving one’s savings”. This is, the pensioner may run out of money. This risk may be transferred to an annuity provider if retirement Wealth is annuitized.
- (v) **Bankruptcy risk.** If the pensioner decides to transfer the longevity risk to a third party (e.g. to a life insurance company in the case of purchasing a fixed annuity), then bankruptcy risk appears, e.g. the company that provides the annuity has long-term liabilities and its assets’ performance may be such that they become insufficient to cover liabilities. Part of this risk could eventually be transferred to a government agency, but someone has to assume it.

Some of the risks listed above are diversifiable, some are not. Some are related with the degree of local capital markets development, but we should keep in mind that this is endogenous to some extent; that is, capital markets will develop in order to accommodate the investments of pension funds if they are large enough.

Work-related risks, investment risks and re-investment risk directly influence the replacement ratio (pension/average salary).

II. HUMAN AND FINANCIAL CAPITAL

Conceptually, we can think that pensions are generated from two sources of Wealth. One is the present value of the remaining future contributions to the pension account – this should be a fraction of total human capital. The other one is financial wealth, e.g. the accumulated savings in the personal account. This fact is important because it indeed leads to choosing different asset allocations during the life-cycle (the multi-fund system may be useful for this purpose).

If we analyze the balance sheet of a future pensioner (see Figure 2), the sources of wealth for pensions are the voluntary savings, the mandatory savings (the pension fund savings account), the present value future contributions (which is related to human capital), and eventually other benefits or guarantees. On the other hand, there is the equity that the affiliate has for retirement, as well as the long-term debt (e.g. a mortgage that the pensioner will continue to pay after retirement). Strictly speaking, the problem should also consider other assets that the pensioner may have, but we simplify the problem.

FIGURE 2

SOURCES OF WEALTH FOR PENSIONS – FUTURE PENSIONER'S BALANCE SHEET

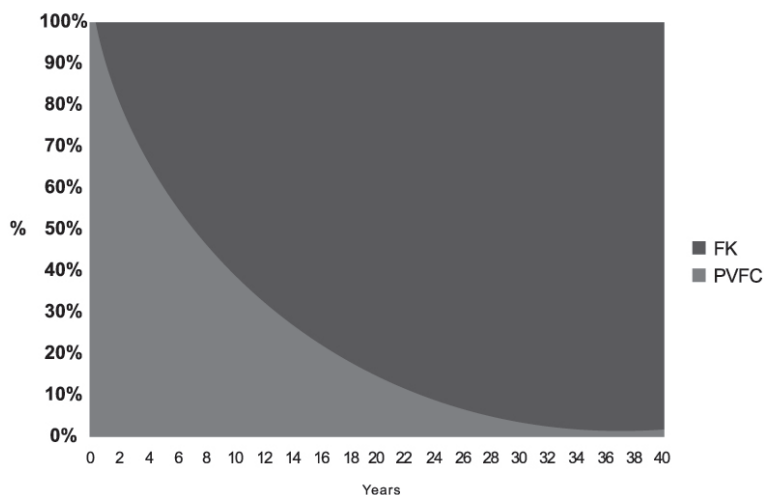
Voluntary savings	Debt
Mandatory savings (PF savings account)	
PV of Future Contributions	Equity for retirement
Other benefits (guarantees)	

SOURCE: PREPARED BY THE AUTHOR. PF: PENSION FUND, PV: PRESENT VALUE.

How do the other benefits or guarantees behave? If they are bond-like, it makes sense from an individual perspective to take more risk with the rest of the portfolio. How does the present value of future contributions behave? Like a bond or fixed-income, or like equity? How risky is human capital?

As we can see in Figure 3, when starting to save for retirement, the present value of future contributions (or human capital) is the largest fraction of the total Wealth, and towards the end, financial capital is the most important. Therefore, the relative importance of each source of wealth changes through the life-cycle.

FIGURE 3
WEALTH COMPOSITION



SOURCE: PREPARED BY THE AUTHOR. FK: FINANCIAL CAPITAL. PVFC: PRESENT VALUE OF FUTURE CONTRIBUTIONS.

III. HEDGING LABOR RISK

Can labor risk be hedged? Can the choice of an investment policy somehow mitigate labor-related risks? I wonder if we really can. Perhaps, it is too large and too individual-specific or idiosyncratic to be hedged. Whether it is possible to find some kind of investment strategy that allows reducing the combined risk related to labor income risk needs to be studied.

IV. THE REPLACEMENT RATIO

We want to argue that, even if labor risk is not hedgeable – if we cannot really find an investment policy that reduces this risk, focusing on the replacement ratio still makes sense. Since pensions may end up being “high” or “low” depending both on contributions and on realized returns, focusing on the replacement ratio is a way of separating the effects of investment decisions from the individual’s contributions to the account. Regarding risk, high labor-related

risk may require more conservative portfolios, but otherwise, maximizing pensions subject to a risk level should be relatively similar to maximizing the replacement ratio subject to a level of risk for the replacement ratio.

Many factors affect the replacement ratio: cumulative expected returns; cumulative volatility; currency risk; and the cost of a pension upon retirement.

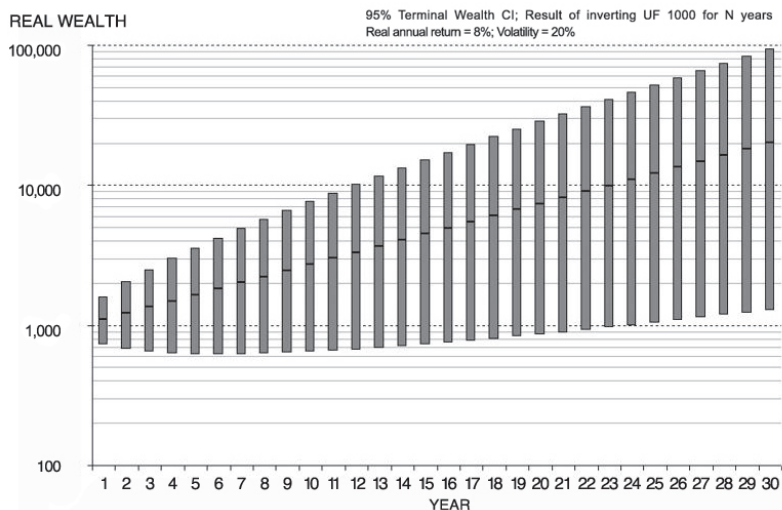
Cumulative expected returns tend to be larger for the riskier asset classes; that's natural, but they are also riskier.

What is interesting, in the case of volatility, is that it tends to be lower for long-term indexed bonds, and tends to be higher for short-term fixed income. So there is a seeming contradiction: if we observe a steady flow of returns, such as when all is invested in short-term deposits or government bonds, it will seem that there is little risk. However, if the exercise is done correctly, we will realize that the opposite is true. Risk may be even higher in this case than investing all the money in equity.

Figure 4 shows the cumulative Wealth of investing in stocks under certain assumptions (let us say that it looks like "spinach"). There is something that people call "time diversification", which is a fallacy; it is not really there. If time diversification did exist, we should expect the confidence interval to start to shrink towards the end. However, the level of final Wealth can be so attractive that we may be willing to take this risk. It is not true that the risk of investing in equities is reduced with the horizon. For longer investment horizons it may be optimal to take additional risk for other reasons.

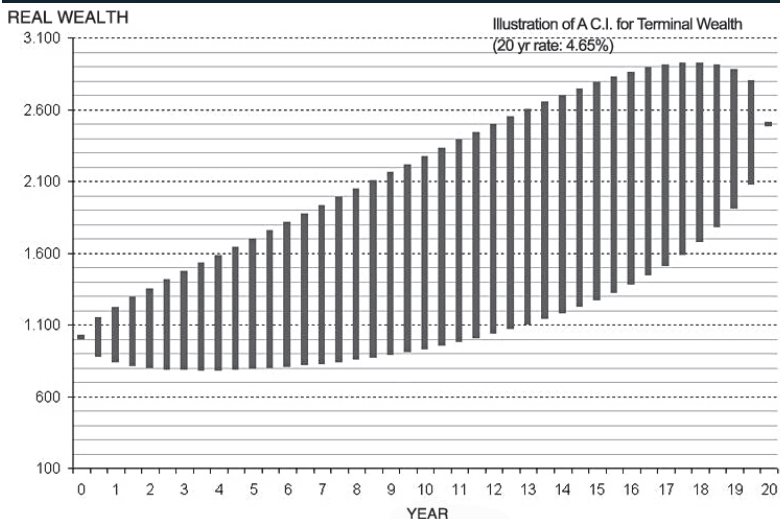
The result of investing in long-term zero-coupon real bonds (see Figure 5), the confidence interval will look like a carrot. We know how much money is invested in the beginning, and also know how much money to get at the end. We know the two extremes, at the beginning and at the end. In the middle there will be volatility if investments are valued at market prices (e.g. if we mark-to-market). There are many reasons for recommending that investments should be marked to market: the reasons for this are related to the incentives faced by portfolio managers and the possible wealth transfers between system participants.

FIGURE 4
SIMULATED CUMULATIVE WEALTH OF INVESTING IN STOCKS ("THE SPINACH")



SOURCE: PREPARED BY THE AUTHOR.

FIGURE 5
SIMULATED CUMULATIVE WEALTH IN LONG-TERM ZERO-COUPON REAL BONDS ("THE CARROT")



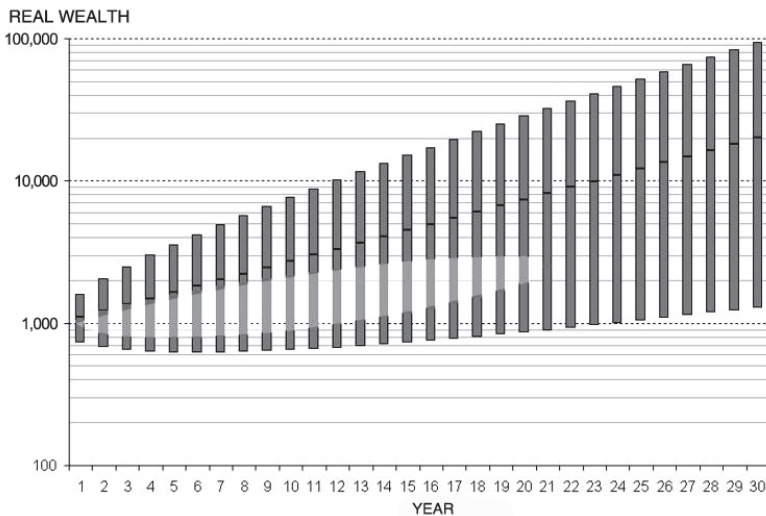
SOURCE: PREPARED BY THE AUTHOR.

We compare the “carrot” with the “spinach” in Figure 6. It is evident the carrot has less risk, but the possibility of earning a higher rate of return is also evident in the case of the stocks.

However, so far the picture is incomplete. There is one additional investment risk that is not considered in the previous figures, which is that cumulative wealth has to be transformed into a pension upon retirement, so this re-investment risk has to be added to the previous ones. For example, in Chile this risk has materialized during the last 10 years or so because interest rates have steadily fallen to their lowest levels ever, so generating a pension today, for a given accumulated capital, today gives much lower pensions.

Reinvestment risk can be partially hedged by investing in instruments that behave like very long-term local indexed bonds. A certain home bias may be useful, particularly in fixed income, which seems evident to me. When investing in fixed income, it makes sense to do it locally, in very long-term indexed fixed income, instead of US dollar fixed income, for example, which is not safe for the purpose of generating pensions in other country’s consumption currency.

FIGURE 6
“THE CARROT” VS. “THE SPINACH”



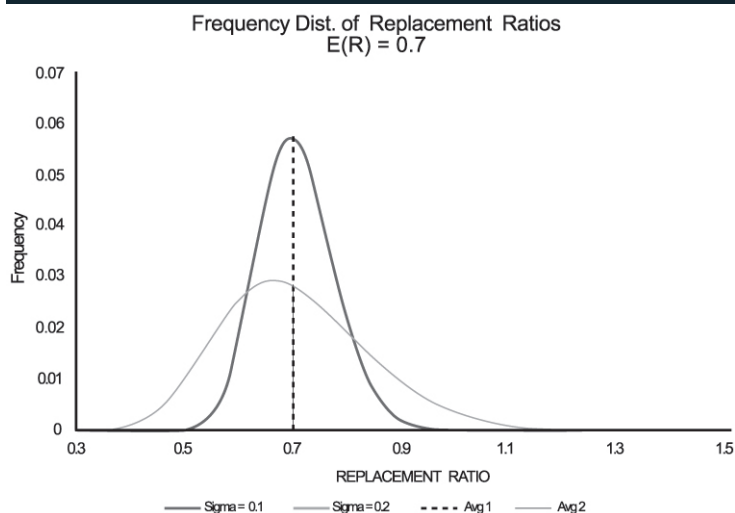
SOURCE: PREPARED BY THE AUTHOR.

Summing up, the relevant risks arise from: the wealth level at retirement; the final salary and the unit pension cost. These three factors determine the probability distribution of the replacement ratio, which is what really matters.

V. MEASURING RELEVANT INVESTMENT RISKS

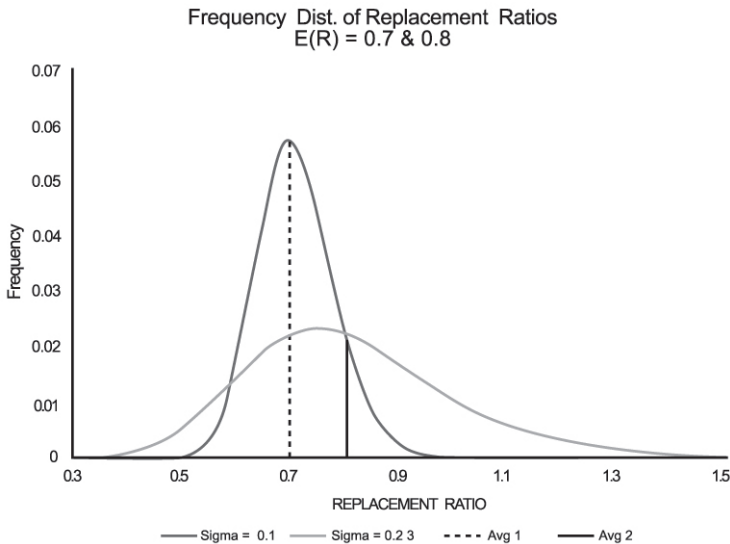
What we should really look at, if we want to measure risk properly, is the incremental effect of an investment on the shape of the probability distribution of the replacement ratio. Specifically, we should look at the marginal effect on the expected replacement ratio and its volatility. Figures 7 and 8 present examples of frequency distributions for replacement ratios. In Figure 7 there are two distributions, both having the same mean, but one has a larger dispersion than the other. In this case, it is probably evident that, given risk aversion, we should choose the distribution with the smaller dispersion (which could represent investing in indexed long-term fixed income, for example). But if we actually consider investing in stocks versus bonds, we expect to find something closer to Figure 8, where the expected replacement ratio is lower when investing in bonds rather than equity. So this is the trade-off that should be looked at; not short-term volatility, not daily volatility, not monthly volatility, not annualized volatility, it's the replacement ratio's volatility.

FIGURE 7



SOURCE: PREPARED BY THE AUTHOR.

FIGURE 8



SOURCE: PREPARED BY THE AUTHOR.

VI. AN APPLICATION (WORK IN PROGRESS)

Our objective is to maximize the expected replacement ratio subject to a level of risk. We assume that 20 years have passed; the investment horizon is 20 years ahead, so retirement will take place in 20 years; contributions to the pension account are 10% of the salary; the total wealth for pensions is composed of the present value of future contributions (35% of the total), the financial wealth in individual account (65%); because of the hump-shaped pattern that salaries usually have during the life-cycle, the growth rate in salaries between years 20 and 40 is assumed to be 0%. We consider estimated parameters for Chile using quarterly data in a relatively large sample, extending from 1990 to 2007. The asset classes are local short and long-term indexed fixed income; US short and long-term nominal fixed income; and local, world and emerging market equity. All returns are measured in local inflation-adjusted currency. We can expect qualitatively similar results for small-open economies in general.

Chart 1 shows the 20-year cumulative return correlations between assets and other variables, estimated using a VAR model.² We can see the correlations with the growth of GDP in excess of the short-term rate of return (which is an important state variable) in row 8 of Chart 1. We assume that the expected return on human capital is equivalent to the growth rate of the economy. This assumption is needed in order to estimate the replacement ratio, since it depends on the final salary.

CHART 1
20-YEAR CUMULATIVE RETURN CORRELATIONS BETWEEN ASSETS AND OTHER
VARIABLES

	1 RCHL_TB	2 ERUS_Q2Y	3 ERUS_30Y	4 ERW_EQTY	5 EREM_EQTY	6 ERCHL_BND	7 ERCHL_EQTY	8 ERG_GDP	9 WG_GDP	10 TOFT_V12M
1 RCHL_TB	1.00	-0.09	-0.17	0.38	-0.48	-0.64	-0.19	-0.73	0.49	-0.36
2 ERUS_Q2Y	-0.09	1.00	0.82	-0.21	-0.21	-0.20	-0.28	-0.02	-0.10	-0.62
3 ERUS_30Y	-0.17	0.82	1.00	-0.34	-0.33	-0.10	-0.41	0.15	-0.14	-0.74
4 ERW_EQTY	0.38	-0.21	-0.34	1.00	0.39	-0.54	0.24	-0.36	0.06	0.14
5 EREM_EQTY	-0.48	-0.21	-0.33	0.39	1.00	0.46	0.74	0.24	-0.52	0.44
6 ERCHL_BND	-0.64	-0.20	-0.10	-0.54	0.46	1.00	0.59	0.40	-0.56	-0.11
7 ERCHL_EQTY	-0.19	-0.28	-0.41	0.24	0.74	0.59	1.00	0.13	-0.51	0.22
8 ERG_GDP	-0.73	-0.02	0.15	-0.36	0.24	0.40	0.13	1.00	-0.27	0.38
9 WG_GDP	0.49	-0.10	-0.14	0.06	-0.52	-0.56	-0.51	-0.27	1.00	0.10
10 TOFT_V12M	-0.36	-0.62	-0.74	0.14	0.44	-0.11	0.22	0.38	0.10	1.00

SOURCE: PREPARED BY THE AUTHOR.

We are also particularly interested in the cost of generating a pension, which is related to the cost of a local long-term bond. The excess return of investing in local indexed long-term bonds has interesting long-term correlations (see Chart 1 row 6). In this case, we want positive correlations: to invest in assets that go up when the cost of the pension goes up. So, in this case, we find positive correlation with emerging market equity and positive correlation with Chilean equity, and negative correlations with US bonds, short and long. So, from this perspective, it is not evident that it is convenient to invest in foreign bonds at all. This is probably not the case for global equity.

2 Vector autoregressive model (VAR) is an econometric model used to capture the evolution and the interdependencies between multiple time series.

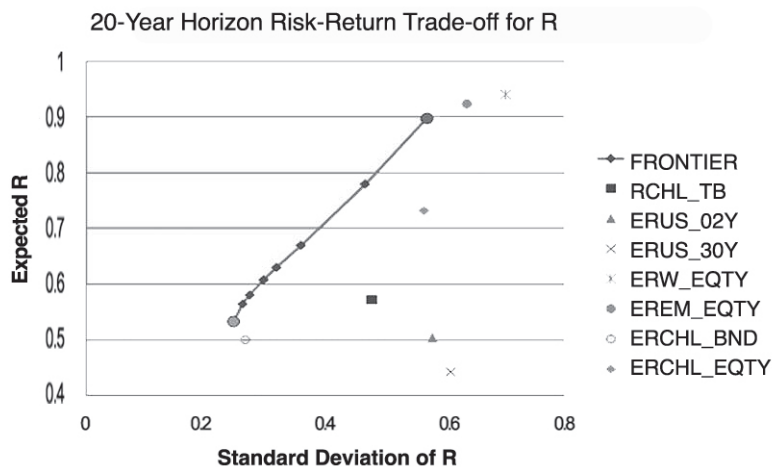
Chart 2 shows the assumptions regarding expected returns. They are all expressed in local real currency. We assume that there is a long-term risk-return trade-off in order to estimate risk premia. Notice that in the case of Chile, the short-term riskless asset's expected return is 3.2%; the US 2-year bond and the 30-year bond have expected returns of 2.1% and 1.3%, respectively; world equity, 6.8%; emerging market equity, 8.1%; the local bond's expected return (which is the long-term bond's yield to maturity) and Chilean equity are 3.0% and 6.7% respectively. Notice that we are not assuming that Chilean equity has a higher rate of return than the world equity. Assuming that any asset class has a higher rate of return, it would not be too surprising to find a large fraction of the portfolio dedicated to that particular asset class, given our assumptions. In this case, however, the assumption goes the other way.

CHART 2
LONG-TERM EXPECTED RETURNS IN LOCAL INFLATION-ADJUSTED CURRENCY

	RETURNS
CHL_TB	3.2%
RUS_02Y	2.1%
RUS_30Y	1.3%
RW_EQTY	6.8%
REM_EQTY	8.1%
RCHL_BND	3.0%
RCHL_EQTY	6.7%

SOURCE: PREPARED BY THE AUTHOR.

FIGURE 9



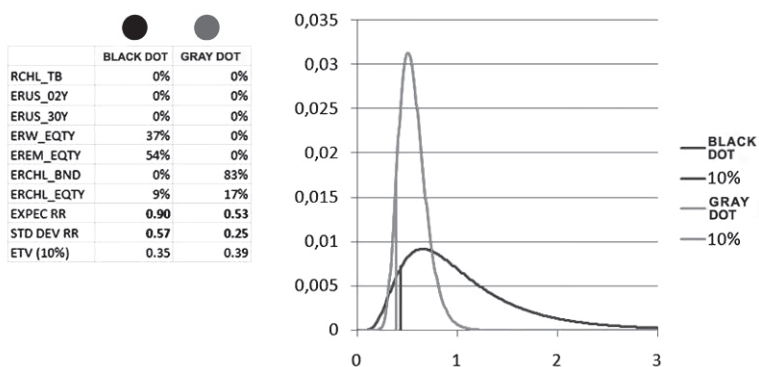
SOURCE: PREPARED BY THE AUTHOR.

Figure 9 shows what we really should be looking for: the risk return trade-off, but not of one-year horizon returns, but of the replacement ratio. On the vertical axis, we have the expected replacement ratio; it goes from 0.5 to 0.9. These are the two extremes of the efficient frontier. Notice that long-term US bonds (ERUS_30Y) are a dominated asset class because it implies high volatility and a low expected value of the placement rate.

FIGURE 10

FREQUENCY DISTRIBUTIONS FOR THE REPLACEMENT RATIO FOR DIFFERENT PORTFOLIOS

100% EQUITY VS. 83% LOCAL LONG-TERM BONDS & 17% LOCAL EQUITY



SOURCE: PREPARED BY THE AUTHOR.

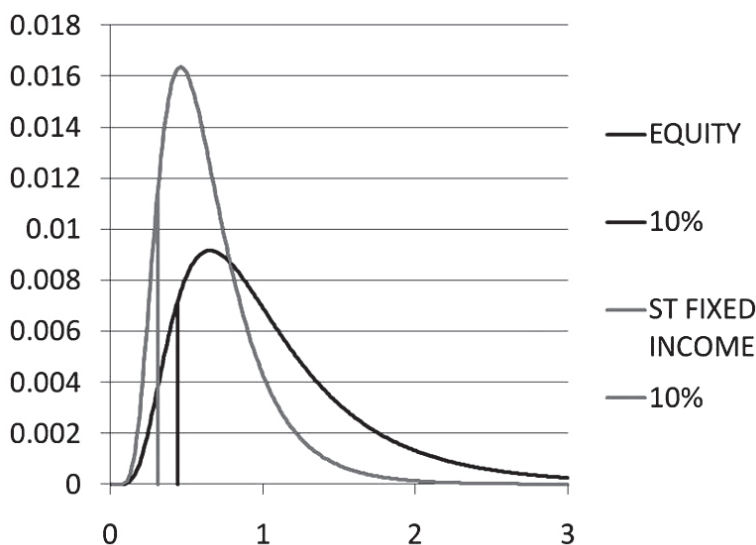
Figure 10 shows the frequency distributions for the replacement ratio for different portfolios. The black line represents a 100% equity portfolio: 54% in emerging market equity, which is significant; 37% in world equity; and 9% in local equity. In this case, the expected replacement ratio is 0.9 and the standard deviation is large, 0.57. On the other hand, the gray distribution represents a more conservative portfolio in which 83% is invested in local long-term bonds and 17% in local equity. This is interesting. It seems that the local asset classes do have certain hedging properties that are not present in the international asset classes. I am not saying that pension funds should only be invested locally, but a bias towards local asset classes does make sense, because they provide us with hedging against certain risks, such as the level of local interest rates. If we want to hedge the level of local interest rates, we would not necessarily achieve it by investing in US long-term bonds.

This is our problem. We believe that the distribution of the stock-only portfolio actually looks very risky. The expected value (this is to say, the replacement ratio, a fraction of the final salary) on the 10% left tail, which is an expected value in the worse-case scenario, is of 0.35 in the case of the all-equity portfolio, and 0.39 in the case of the lower-risk portfolio. So, the expected-tail-value in

the case of investing in the highest risk portfolio is significantly worse in this exercise.

An important issue is that what seems to be riskless, or to have low risk in the short-term, when transformed into replacement ratios turns out to be very risky. So, we really should not be looking at the short-term volatility or overreact after a year with a very low rate of return. We now provide an example that compares investing 100% in equity versus investing 100% in short-term fixed income (see Figure 11). Again, we use the portfolio that invests 37% in global equity, 54% in emerging market equity and 9% in Chilean equity, and compare it with 100% invested in local short-term fixed income. The green line represents the 100% short-term fixed income portfolio and the red line the 100% equity portfolio. We see that short-term fixed income looks worse. Short-term fixed income implies low expected replacement ratios compared to this, and it has a relatively large volatility. The expected-tail-values at the bottom 10% are similar, but short-term fixed income does not have the upward potential.

FIGURE 11
FREQUENCY DISTRIBUTIONS FOR THE REPLACEMENT RATIO FOR
100% EQUITY VS. 100% SHORT-TERM FIXED INCOME



SOURCE: PREPARED BY THE AUTHOR.

VI. FINAL COMMENTS AND SOME POLICY IMPLICATIONS

In the context of pensions, risk is not necessarily well described by short-term volatility, Value at Risk (VaR), expected short-term tail loss, the proportion invested in equity, or unhedged currency risk. Short-term fixed income, which apparently has little risk, in the long term, is quite risky. “Re-investment risk” is significant. It exists because eventually interest rates will go down and the level of returns will be low compared with other asset classes.

So, how much risk is tolerable?

What risk?

If it is headline risk, we face a political problem, not a technical one. Headline risk is observing for example that pension funds lost 20% of their value in a given month. And what do we do with that? Reality tells us that we cannot ignore headline risk, but it is not the kind of risk we should be worried about from a technical perspective. To avoid headline risk, we have to do exactly what has been demonstrated to be suboptimal: to invest a large fraction in short-term fixed income. A 100% short-term fixed income portfolio is apparently safe, but in the long term it is actually riskier than investing 100% in an equity portfolio.

So, we should be looking at pension risk. It is difficult to eliminate pension risk in any pension system. Pension risk is significantly reduced only when we invest in long-term inflation-adjusted bonds. And if we mark-to-market these bonds, they will appear to be risky, that is, they will have volatility. We do not say that securities should not be marked-to-market since the consequences could be even worse.

What are the main policy implications? First, I do not think that we are prepared to adopt a risk-based supervision for investments. It is very natural to do it when you have short-term liabilities, as in the banking system for example, but in the case of DC pension systems this does not make sense.

Second, we can estimate the impact of different asset classes on the probability distribution of the replacement ratio. However, we also have to admit that there is an important model risk, since we need a large number of assumptions in order to figure out what the distribution of the replacement ratio looks like.

But even though there is a model risk, we can still use their results to set up reasonable investment guidelines.

Will the market – that is, competition among pension funds – spontaneously move us towards efficient risk-return trade-offs measured in replacement-ratio-units? It is very hard to ask that from a system; we do not think that it will ever happen spontaneously, because pensioners and portfolio managers understand risk differently. The only way of promoting some kind of competition that will eventually take us to the efficient frontier, measured in terms of replacement-ratio-units, is with the appropriate guidelines.

What are the long-term risks for the pensions that we should keep an eye on? One of them is, of course, cumulative volatility. It is usually, but not only, associated with equity – remember the case of the short-term fixed income. Also, despite the higher volatility, equity may have lower long-term risk than short-term fixed income.

There are also other kinds of risks that do not show up everyday, called “tail risks”, which happen infrequently, for example, during the 2008 crisis. They are called tail risks because they are at the extreme of the probability distributions. A way to think about these risks is to call them “sleeping monsters”. During my entire life, there was a monster sleeping under my bed, but it never woke up. So if it never wakes up, we do not really notice that it is there. This is perhaps obvious, but most of these risks will not show up in day-to-day volatility. They appear suddenly and produce very significant losses. These risks can be detected via stress analysis but mitigating them is not trivial.

The first tail risk is credit risk. We should check the average credit quality of the portfolio is. What happens in this case is that in world and/or local crises, the payment capacity of the issuers is affected, and they may not pay back the loans.

Another significant loss may arise from inflation risk. Regulators should verify if there is “too much” invested in nominal bonds. The problem here is an unexpected surge in local inflation (the inflation monster), which erodes the nominal bonds’ purchasing power.

Another similar problem is exchange rate risk. We should ask what fraction of the portfolio is effectively denominated in foreign currency. When investing in

foreign equity exchange rate tends to act counter cyclically; that is, every time the stock markets go down, certain currencies depreciate, becoming natural hedges.

Finally, another tail risk is re-investment risk. We do not know whether there will be a large permanent drop in local real interest rates. We should check if the portfolio is invested in relatively short-term instruments.



CHAPTER III

BUSINESS CYCLES AND PENSION FUNDS

DAVID TUESTA. Asset prices in the economic cycle: a historical perspective

BRETT COLLINS. Innovative solutions for managing risk in volatile times

MARLIES VAN BOOM. International portfolio diversification for pension funds

ASSET PRICES IN THE ECONOMIC CYCLE: A HISTORICAL PERSPECTIVE ¹

DAVID TUESTA ²

¹ *Javier Alonso, Iovonne Ordóñez and Carlos Herrera have made valuable contributions to this paper.*

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ABSTRACT

This paper seeks to analyze the performance of the Latin American pension funds from a broad perspective, with greater emphasis on the cases of Chile, Colombia, Mexico and Peru.

The central thesis is that the pension funds have responded to the battering of the financial crisis very flexibly and efficiently, reducing the impact of financial market volatility on the different groups of members. Additionally, those groups close to retirement have been properly protected by the adequate balance between prudence and regulation in the countries, which in most cases have had multifund schemes which adapt the financial investment profile to the agents' life cycles.

INTRODUCTION

This work seeks to analyze the performance of the Latin American pension funds from a broad perspective by analyzing the situation of the systems in Chile, Colombia, Mexico and Peru.

This document is organized as follows: first, the functioning of the systems in the region will be analyzed in order to dimension the analysis. In the second part, the size of the funds and how they have evolved since their creation will be described. Further on, the study will focus on the impact of the crisis on the assets managed in the private systems; breaking down the information into what is strictly profitability and what corresponds to contributions.

The final part will review the long and short term aspects underlying this behavior and how some countries have structured or incorporated life cycle schemes that enable addressing this problem, especially for diminishing the risks of significant market variability for those members who are about to retire.

The central theme of the document is that the private pension funds have responded to the battering of the financial crisis very flexibly and efficiently. Additionally, those groups of members about to retire were conveniently protected by both the adequate

balance between prudence and regulation and the presence of multiple fund schemes (multifunds) that regulate investment decisions according to members' life cycle.

I. Basic drivers for the development of pension funds

The functioning and scope of any specific pension system depend to a large extent on the structural characteristics of their economy. Thus, demographic variables and the market and institutional structures of countries will influence its current and future performance. Chart No.1 shows some of these variables for Chile, Colombia, Mexico and Peru.

CHART NO.1
SOME STRUCTURAL AND DEMOGRAPHIC DRIVERS OF PENSION SYSTEMS IN LATIN AMERICA

	Chile	Colombia	Mexico	Peru
Per capita GDP (constant US\$)	7,370	2,954	7,537	2,317
Labor informality (% population not covered by social security)	24%	49%	41%	71%
Labor legislation Protectionism (Index)	24	74	38	61
Population of 65 years old and over				
2005	8%	5%	6%	6%
2050	22%	18%	21%	16%

SOURCE: BBVA ERD.

The pension coverage rate, i.e. how many people will be incorporated into the pension systems, will basically depend on variables such as the balance between the formal and informal sectors of economies, which can to a great extent be reflected by indicators such as the degree of protection of the labor markets and degree of informality measured in each one of the countries. From the indicators we can see a clear contrast between Chile and the rest. For example, it can be seen that this economy has a less rigid labor market, which makes it possible for a larger percentage of the population to access a job and thus contribute to a pension fund. Higher or lower flexibility in labor relationships will generate markets more or less exposed to informality, as can be seen in the cases of Colombia, Mexico and Peru.

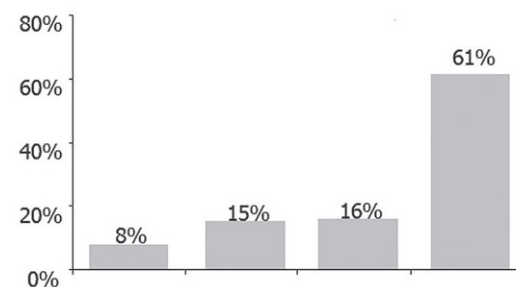
Similarly, the level of pensions that can be expected under certain rules and regulations will also depend on the degree of wealth any specific economy is capable of generating. The latter can be approximated by indicators such as per capita income levels and members' permanence in the formal labor market, which would enable generating ongoing income, and consequently savings, for their old age.

There are other factors that have a bearing on the functioning of financial markets and on the parameters defined by the system that will also influence the volume of managed assets, as we will see in the following section.

II. Size of the pension funds in Latin America

From the analysis of the structural indicators of countries reviewed previously, one can understand the differences between the sizes of the managed funds. With figures as of 2008, Chile has more than 5 times the managed funds than the rest of the countries (See Graph No.1). It is important to mention that in addition to the economic considerations discussed, there are other factors that also influence the dynamics of growth and the resulting size of the funds: the parameters that are defined for the system (contribution rate, years of participation in the system, legal retirement age, among others), the development of the financial markets, the profitability rate, the number of years the fund has been operating and the social and economic factors of each country.

GRAPH NO. 1
PRIVATE PENSION FUNDS 2008 (% OF GDP)



SOURCE: BBVA ERD.

Chart No. 2 shows some of these variables. In the first place, the time the systems have operated becomes a determining factor for their size, as can be seen in the case of Chile, where the private pensions system has been in existence for almost 30 years. Secondly, the level of contribution rates to each system is a clear differentiator of the potential of the funds, as can be seen in the case of Mexico, where the contribution is lower than in the rest of the countries. Thirdly, the real historical profitability rate also has an influence. Finally, the participation rate of the labor market in private funds is significant. Hence, note the contrast between Peru and Colombia with participations of only 20% and 30% of the labor market with respect to Chile which has a participation of close to 70%. This marks the difference and dimensions the problem for each one of the countries, despite the fact that we are talking about mandatory pension systems in all cases.

CHART NO.2

SOME DETERMINING VARIABLES FOR THE SIZE OF THE PRIVATE FUNDS (AS OF DECEMBER, 2008)

	Mexico	Peru	Colombia	Chile
Maturity of Private schemes (years of existence)	11	15	15	27
Contribution rate	6.5%*	10%	11%	10%
Historical real return	8%	10%	7%	10%
Labor force participation in mandatory private funds	56%	22%	27%	69%

* Not included social quota

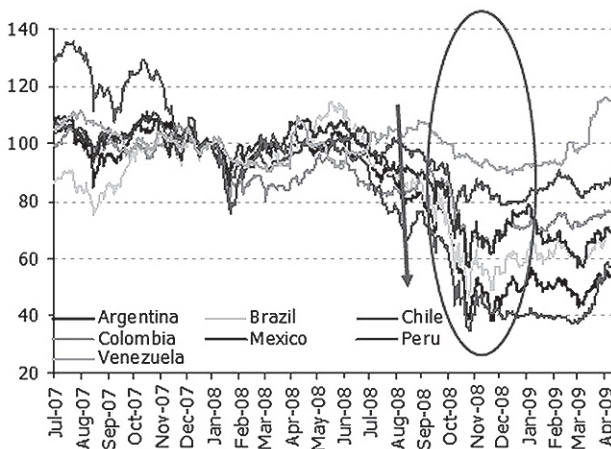
SOURCE: BBVA ERD.

III. Impact on the Pension Funds in the current crisis

Markets have evidently been affected by the financial crisis. Graph No.2 shows the overall behavior of assets with a generalized downturn, whereas Graph No.3 shows that investments in the region also reflected higher country risk.

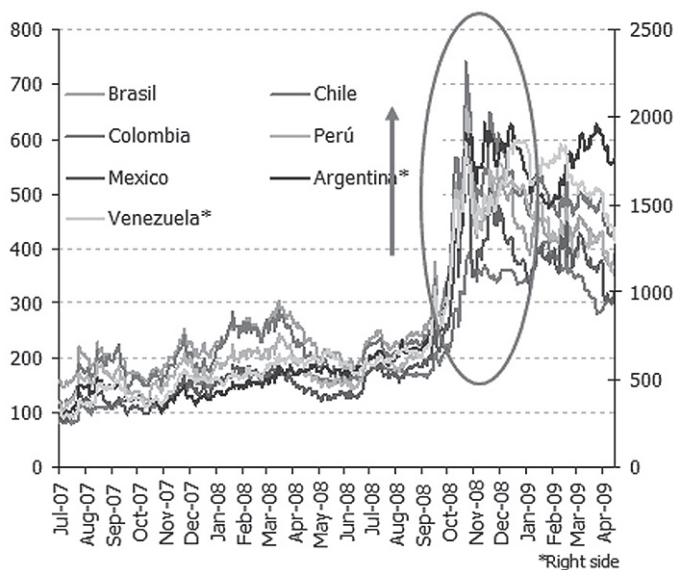
GRAPH NO. 2

LATIN AMERICAN STOCK EXCHANGES (JAN. 2008 = 100)



SOURCE: BLOOMBERG.

GRAPH NO.3
EMBI³ SPREAD LATIN AMERICA (PBS.)



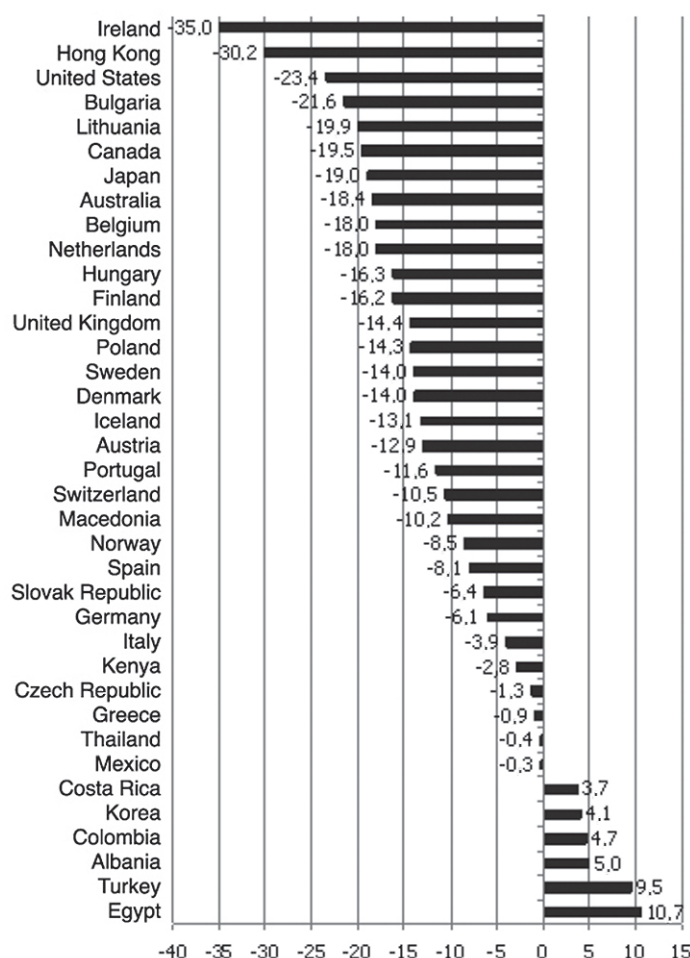
SOURCE: DATASTREAM.

Graph No.4 shows the nominal return of the pension funds in selected countries in 2008, concluding that they have not been immune to the crisis. The degree to which countries are affected is closely related to the size of the funds in each one of them, the way they have been structured and the capacity for risk taking.

- 3 The EMBI (Emerging Markets Bond Index) is an economic index drawn up daily by the JP Morgan Investment Bank since 1994. The purpose of this indicator is to serve as a benchmark that objectively reflects the perception of the market risk associated to investing in securities of the selected country. This risk, usually denominated "country risk", is measured by the difference in financial returns of the public debt of the emerging country selected compared to what is offered by the North American public debt, which is considered to have a "null" uncollectable risk.

GRAPH NO. 4

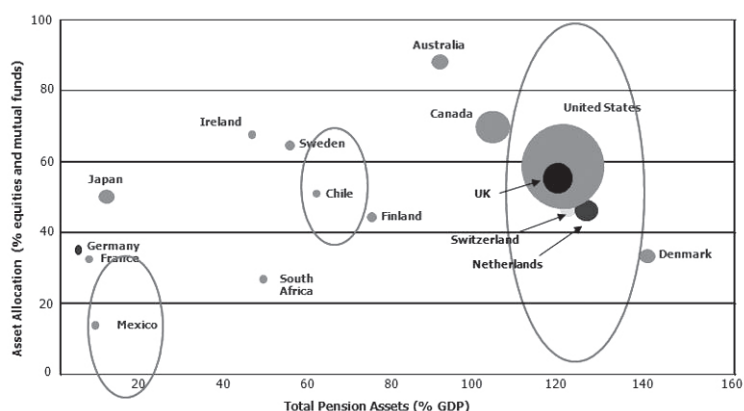
NOMINAL RETURN (%) OF THE PENSION FUNDS IN SELECTED COUNTRIES IN 2008



SOURCE: OECD.

Graph No. 5 shows the most affected pension funds worldwide, which were precisely the ones in developed countries with high exposure to variable income, such as the United States, the United Kingdom, Switzerland and Holland, whereas the biggest funds in Latin America, namely Mexico (account holders) and Chile (assets) were also affected, but to a lesser extent.

GRAPH NO. 5
EXPOSURE TO VARIABLE INCOME VS. PENSION FUND ASSETS PER COUNTRY
AT THE END OF 2007

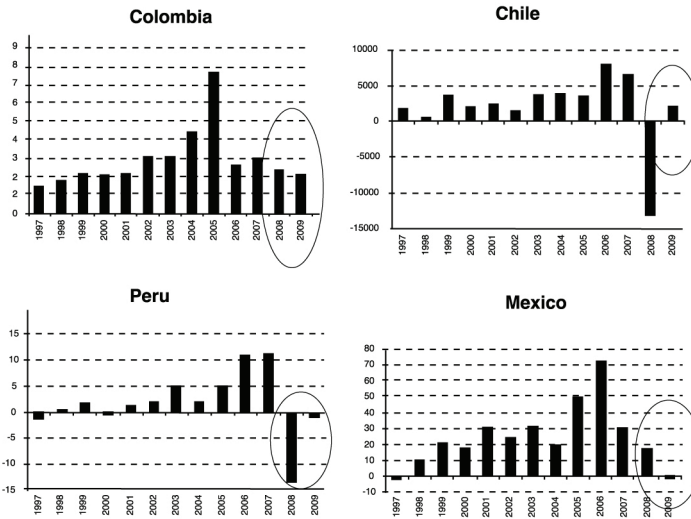


SOURCE: OECD GLOBAL PENSION DATABASE.

Graph No. 6 shows four compared trajectories of yields net of commissions in Colombia, Chile, Mexico and Peru with the monthly information from January 2008 to February 2009. It shows the significant drop of the funds as well as the recovery they have begun to experience since the beginning of 2009. In annual terms, there are countries that were better protected, as in the case of Colombia and Chile. Colombia, in yearly terms, has remained relatively stable, perhaps due to a much more conservative asset management policy.

GRAPH NO.6

YIELDS NET OF COMMISSIONS OF THE PERIOD IN LATIN AMERICA
THOUSANDS OF MILLIONS OF LOCAL CURRENCY UNITS IN DECEMBER 2007

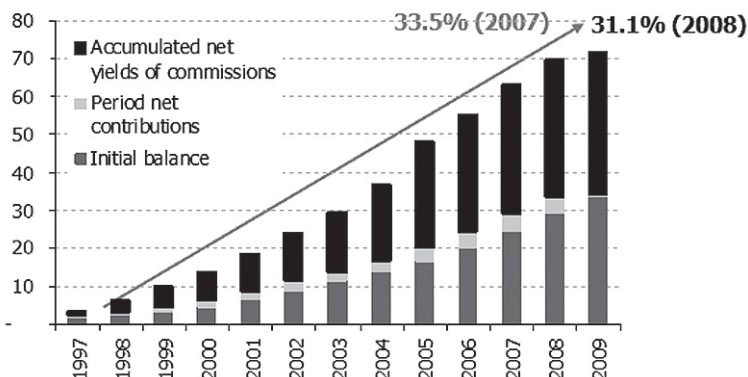


SOURCE: BBVA ERD.
NOTE: INFORMATION AS OF FEBRUARY 2009.

However, if we observe historical trends compared to profits from the beginning of each one of the pension fund systems, we can see that they maintain a more or less reasonable profitability profile. Graphs Nos. 7, 8, 9 and 10 show the information for 2007 and 2008 in each one of the analyzed countries, breaking down the performance of the pension funds, taking out the commissions and contributions and bearing in mind the accumulated net yield. In all cases it can be seen that despite the past deficits, the values of the yields net of commissions still show a significant long term growth: 33.5% in 2007 and 31.1% in 2008 (Colombia); 31.7% in 2007 and 24.3% in 2008 (Chile); 35.8% in 2007 and 27.6% in 2008 (Peru); 61.2% in 2007 and 55.7% in 2008 (Mexico).

GRAPH NO.7

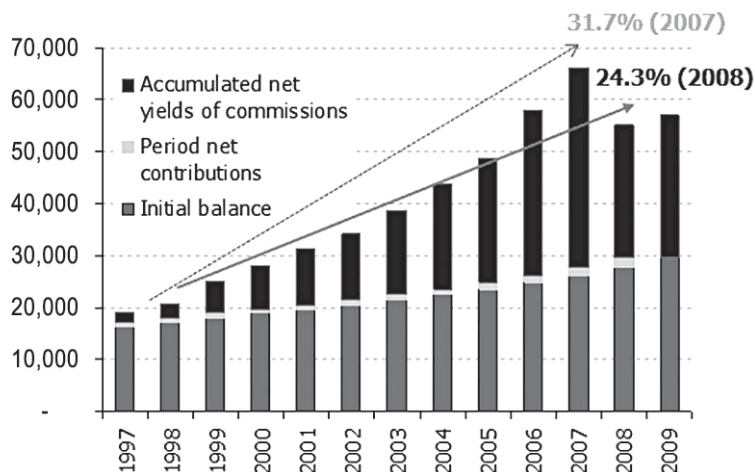
COLOMBIA: DETAIL OF THE BALANCE OF MANAGED RESOURCES
THOUSANDS OF MILLIONS OF PESOS IN DECEMBER 2007



SOURCE: BBVA ERD.
NOTE: INFORMATION AS OF FEBRUARY 2009.

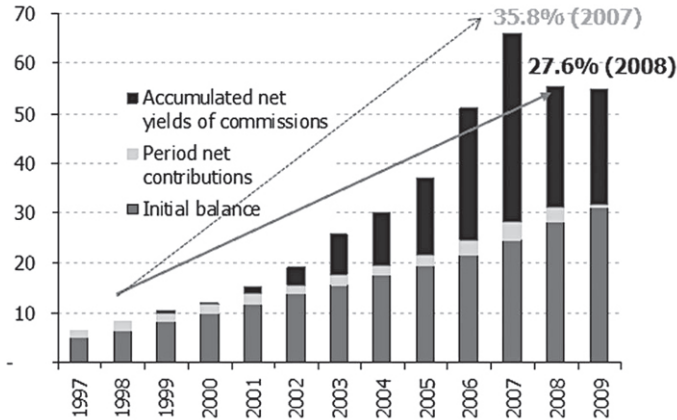
GRAPH NO.8

CHILE: DETAIL OF THE BALANCE OF MANAGED RESOURCES
THOUSANDS OF MILLIONS OF PESOS IN DECEMBER 2007

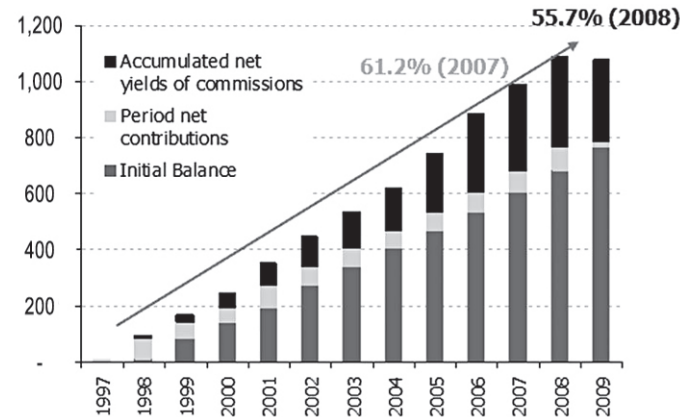


SOURCE: BBVA ERD.
NOTE: INFORMATION AS OF FEBRUARY 2009.

GRAPH NO.9

PERU: DETAIL OF THE BALANCE OF MANAGED RESOURCES
THOUSANDS OF MILLIONS OF NEW SOLES IN DECEMBER 2007SOURCE: BBVA ERD.
NOTE: INFORMATION AS OF FEBRUARY 2009.

GRAPH NO.10

MEXICO: DETAIL OF THE BALANCE OF MANAGED RESOURCES
THOUSANDS OF MILLIONS OF PESOS IN DECEMBER 2007SOURCE: BBVA ERD.
NOTE: INFORMATION AS OF FEBRUARY 2009.

On establishing an average real accumulated profitability indicator of the pension fund systems in the analyzed countries, we see that the average historical rate in 2008 amounts to 7.9% per year, which is a remarkable achievement. This average has clearly been dropping over time (see Chart No. 3) to the extent that there is a structural component that depends on the implicit risk of the country, the natural long term growth rate and the composition of the portfolios which have incorporated less and less public debt participation.

CHART NO. 3
REAL ACCUMULATED PROFITABILITY OF THE PENSION FUNDS
LATIN AMERICA (*)

1998	11.7%
1999	14.7%
2000	12.5%
2001	11.8%
2002	10.7%
2003	10.6%
2004	10.2%
2005	10.1%
2006	10.4%
2007	10.2%
2008	7.9%

(*) WEIGHTED AVERAGE FOR ACCUMULATED NET PROFITABILITY ASSETS MANAGED IN THE PENSION FUND SYSTEMS OF COLOMBIA, CHILE, MEXICO AND PERU.
SOURCE: BBVA ERD.

Although the above shows an adequate average performance in the profitability of the pension funds, it is also important to obtain an evaluation of the effects of the profitability on participants' individual portfolios, since depending on whether they are relatively close to the retirement period at the time of a financial crisis they will face different circumstances. Modigliani and Muralidhar, 2005, have an interesting approach in this regard.

Bearing in mind the above issues, the individually funded pension systems have been incorporating the multifunds systems in order to mitigate the effects of the fluctuations of the financial markets on the portfolios of groups of members that could be close to

retirement and would therefore not have sufficient time for markets to recover. These systems were incorporated in Chile and then followed by Peru and Mexico.

Chart No.4 shows the breakdown of each one of the multifunds in the case of Chile, from the most risky to the most conservative. One can see, for example, how nearly 90% of members over 55 (who are close to retirement) have their funds invested in portfolios with little exposure to variable income (Funds D and E).

CHART NO. 4
CHILE: MEMBERS ACCORDING TO MULTIFUND AND AGE STRUCTURE

	Until 20	+20-25	+25-30	+30-35	+35-40	+40-45	+45-55	+50-55	Over 55 years old
FA-Riskiest	8.4%	21.9%	18.9%	15.0%	12.3%	10.6%	8.0%	4.0%	0.8%
FB-Risky	7.7%	18.3%	22.0%	23.3%	21.9%	2.5%	1.4%	1.5%	1.6%
FC-Intermediate	0.1%	0.6%	1.2%	1.5%	22.0%	26.6%	23.9%	16.6%	7.4%
FD-Conservative	0.0%	0.2%	0.6%	1.0%	1.2%	1.4%	1.4%	26.7%	67.5%
FE-Most Conservative	0.5%	2.4%	7.0%	11.5%	14.2%	15.7%	15.2%	13.2%	20.3%

SOURCE: CHILEAN SUPERINTENDENCY OF PENSIONS.

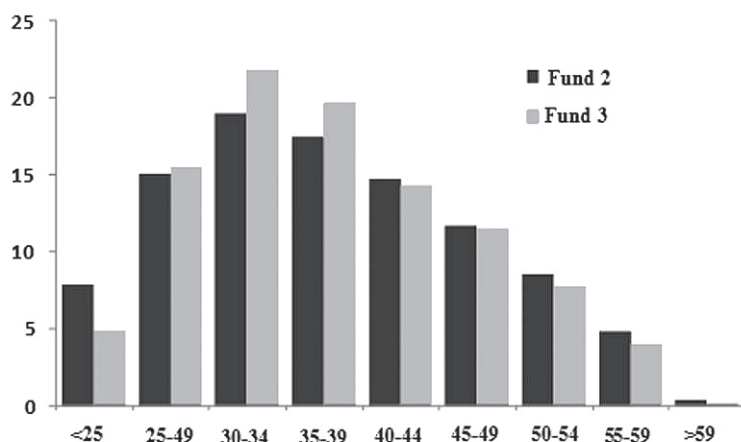
In Chart No. 5 we have the case of Mexico in which the multifunds system (Basic Siefore, SB) operates automatically placing the investment of members' funds in different portfolios according to their age. In Graph No. 11 we can see the case of Peru where it can be seen that older members with less time for recovering possible losses prefer the most conservative fund (Fund 2), whereas young people choose the riskiest one (Fund 3).

CHART NO.5
MEXICO: MEMBERS ACCORDING TO TYPE OF MULTIFUND AND AGE STRUCTURE

	Under 26	+27-36	+37-45	+46-55	Over 55 years old
Siefore					
SB1-Most Conservative	13.3%				
SB2-Conservative		37.4%			
SB3-Intermediate			26.1%		
SB4-Risky				14%	
SB5-Riskiest					9.20%

NOTE: BY LAW, INDIVIDUALS CANNOT BE IN MORE THAN ONE BASIC SIEFORE, HENCE THE SUM OF THE DIAGONAL IS 100%.
SOURCE: NATIONAL RETIREMENT SAVING SYSTEM COMMISSION (CONSAR).

GRAPH NO.11
PERU: MEMBERS ACCORDING TO THE TYPE OF MULTIFUND AND AGE STRUCTURE



NOTE: FUND 1 WAS NOT INCLUDED, SINCE 96% OF MEMBERS OF SUCH FUND ARE OLDER THAN 55.
SOURCE: AFP HORIZONTE.

Although the multifund systems were functioning very successfully prior to the crisis, it is true that they need to adapt over time. Some areas for improvement and recommendations can be identified, as detailed in a recent study by the OECD (2009) which we summarize in Chart No. 6. For example, one of the areas which requires greater depth is the issue of choice decision by agents. Questions concerning the degree of financial education of the members participating in the system, the degree of market transparency, the regulator's role, among others, are issues that must be addressed.

CHART NO.6

Some Problems in Latin American "multifunds" DC systems

Members can only choose one fund, defaults assign members to single fund; combination of two may be optimal

Strategic asset allocations change with market conditions, no rebalancing \Rightarrow age-based default asset allocations moving around

The default life-cycle model has step changes in asset allocation rather than gradual shifts

How you choose in the cumulative phase impacts management in the pay out phase

Some Suggestions

Each "multifunds" has a fixed equity-bond allocation and does regular rebalancing; details of strategic asset allocation left to AFPs, reviewed regularly

Regulator defines the default age-based investment glide path after a full calibration of model for a typical worker/s

Pension funds measure performance against market benchmark, not average industry return

Allow international diversification

SOURCE: ANTOLÍN AND STEWART (2009).

IV. CONCLUSIONS

On performing a historical revision of the crisis, one finds that even though there have been negative impacts, they have always been overcome later on (See Chart No. 7). The recent performance of the markets at almost mid-2009 shows that this is being confirmed.

CHART NO.7

Recession	Length (months)	Negative Yield	Yield After a year
Great Depression (1929-1932)	34	-86%	124%
World War II (1937-1942)	61	-60%	59%
Post War II (1946-1949)	37	-30%	42%
Oil Crisis (1973-1974)	21	-48%	38%
Debt Crisis (1980-1982)	21	-27%	58%
Stock Exchange Crash (1987)	4	-34%	23%
Internet Bubble (2000-2001)	31	-49%	34%
Current Crisis (2007- ?)	18.5	-46% ⁽¹⁾	?
Average 13 Crisis (exclusion the current crisis)	22	-39%	46%

(1) Accumulated Fall of S&P 500 Index

SOURCE: ISI, BLOOMBERG, NATIONAL BUREAU OF ECONOMIC RESEARCH (NBER), HAVER ANALYTICS.

Assuming that what we are going through is not, and will not be the end of the world, the duty of those responsible for the pension systems is to continue focusing on long term improvements, properly identifying the most relevant issues. In the countries with mandatory defined contribution pension systems, it will be necessary to focus on coverage issues, seeking the establishment of an adequate state solidarity system that will enable providing greater economic and social sustainability to the systems. Furthermore, the fiscal problems that still exist in some countries must continue to be addressed as well as greater depth of the capital markets and improving underlying aspects such as the financial education of the population.

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INNOVATIVE SOLUTIONS FOR MANAGING RISK IN VOLATILE TIMES

BRETT COLLINS ¹

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2008 LESSONS LEARNED DRIVE INVESTOR TRENDS IN 2009

To ignore the lessons learned in the last 18 months would be foolhardy for any pension plan. In the last 10 years, we have seen two separate instances where the market has lost about 50% of its value, looking at the S&P 500 index. From August 2000 through September 2002, the S&P 500 index lost 45%, and from October 2007 through March 2009, it lost 55%. During that 10-year stretch, equities have also had periods where they posted very impressive returns, and other risky asset classes have also seen similar peaks and valleys over that 10-year period. So, traditional diversification is extremely important in dealing with periods of volatility like this.

Beyond traditional diversification, pension plans really need to consider optimal strategies for dealing with volatility, and incorporate innovative approaches to identifying and controlling risks in the portfolios. So although it might be a bit painful, it is probably worth exploring some of the lessons that we have learned over the last 18 months. These lessons are not unique to this deflated market; they are common to contracted markets throughout history, and we expect to see the same kind of lessons and problems when we have bear markets and future periods of volatility going forward.

The first lesson learned is a flight-to-quality. Correlations move to extremes during periods of uncertainty, and what we tend to see is that risky asset classes that may have a low correlation with each other during normal periods, move to extremes and they all sell off together. Everything that is risky sells off and high-quality assets rally, namely, government bonds rally. Unfortunately for a pension fund, you can get hit from both sides. The risky assets in your portfolio depreciate in value and the decline in interest rates causes an increase in the present value of your liabilities.

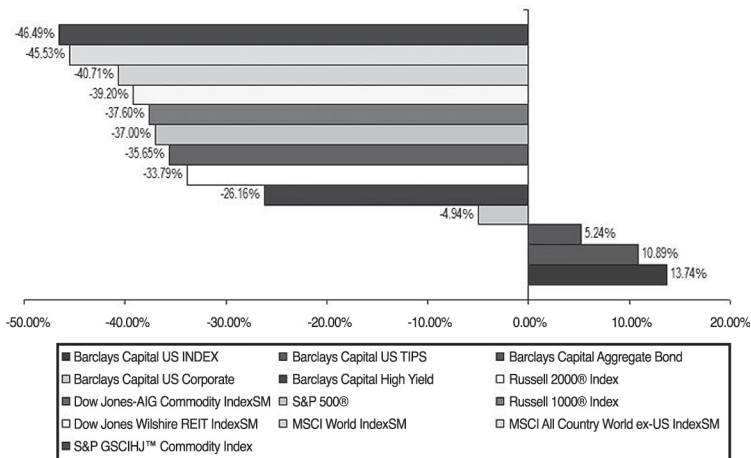
The second lesson learned is the flight-to-liquidity. This is also a common occurrence in a bear market. Investors like to boost their cash holdings during periods of uncertainty, and they tend to avoid rebalancing during these types of periods, first, because of the uncertainty, secondly, because there is typically an increase in transaction costs during these highly volatile periods. I know this was the case for many pension funds that

stopped rebalancing last year. That decision helped quite a bit in the second half of 2008, but it has been very painful since the first week of March 2009.

The third lesson, at the risk of stating the obvious, is that risk management is vital. Traditional forms of risk management are essential to controlling risks in your portfolio. A pension plan can certainly get an edge by using innovative approaches to identify where the risks in their portfolio really lie, and by developing innovative tools and techniques for managing those risks.

Figure No.1 shows a snapshot of some market returns in 2008. Of course, there was nowhere to hide in any risky asset class last year. Equities, commodities, emerging markets, real estate, you name it, if it was risky, it was down last year. The only things that rallied were high-quality assets like government bonds.

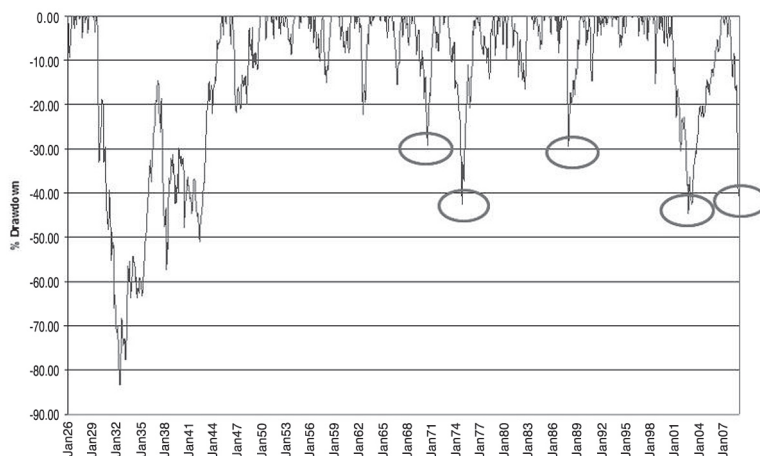
FIGURE NO.1
2008 INDEX RETURNS



NOTE: INDEX RETURNS ARE UNMANAGED AND DO NOT REFLECT THE DEDUCTION OF ANY FEES OR EXPENSES. INDEX RETURNS REFLECT ALL ITEMS OF INCOME, GAIN AND LOSS AND THE REINVESTMENT OF DIVIDENDS AND OTHER INCOME. INVESTORS CANNOT INVEST DIRECTLY IN AN INDEX.
SOURCE: SSGA, FACTSET.

To put the drawdown of the equity market in context, Figure No.2 looks at historical drawdowns going back to 1926. The two sell-offs on the right happened in the last 10 years. There have been five separate instances where the S&P 500 index has lost about a third of its value at a minimum. Proponents of an asset class like to call an extreme bear market a hundred-year flood. These types of drawdowns in equities are not isolated incidents; they happen time and time again, and they are likely to continue happening going forward, so pension plans need to prepare for these types of drawdowns when building a portfolio

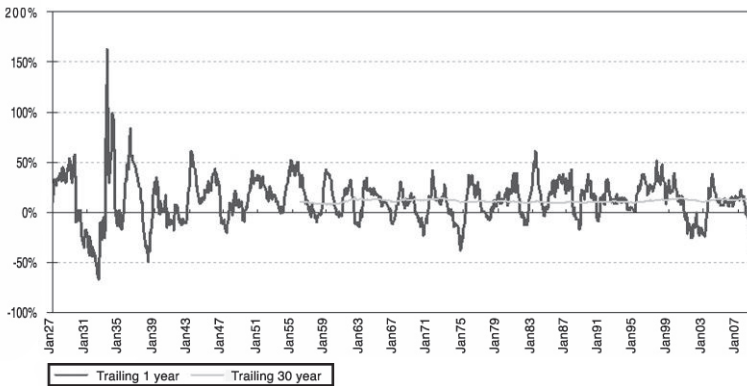
FIGURE NO.2
S&P 500 INDEX TOTAL RETURN DRAWDOWN 1926 - 2008



SOURCE: IBBOTSON, SSGA, FEBRUARY 2009.

Figure No.3 looks at short-term and longer-term returns on equities. Pension plans have a unique benefit relative to other types of investors, in that you can afford to take a much longer perspective on your investment so there is certainly a place for equities in a pension plan portfolio. Over the short term, returns bounce around from positive to negative, but, over a 30-year period, returns are remarkably stable in the upper single digits. So there is certainly a place for equities in your portfolio, but you need to be cognizant of the short and medium-term risks of holding equities, and of the impact that equity returns can have on your funding ratio.

FIGURE NO.3
HISTORICAL RETURN OF THE S&P 500 INDEX SINCE 1926



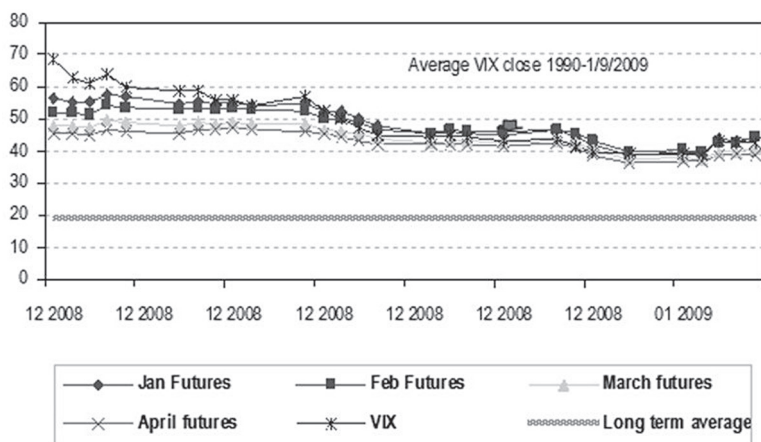
SOURCE: IBBOTSON, SSGA, FEBRUARY 2009.

I haven't even mentioned the massive drawdown around the Great Depression and, hopefully, government policymakers have learned a few things from that experience. We certainly saw a swift policy response to this acute recession that we have been experiencing globally, so hopefully those sharp drawdowns that we saw in the early part of the last century are behind us, but you cannot wholly discount that.

Figure No.4 shows another snapshot of volatility, looking at the CBOE² Volatility Index (VIX), which is a key tool investors use to evaluate market volatility. Historically, the VIX has traded around 20; we saw that spike to around 60 or 70 in the second half of 2008. The VIX has come down quite a bit, it's around 30, much off the peak of 2008, but still 50% higher than the long-term average. So, volatility is a persisting phenomenon.

2 Chicago Board Options Exchange.

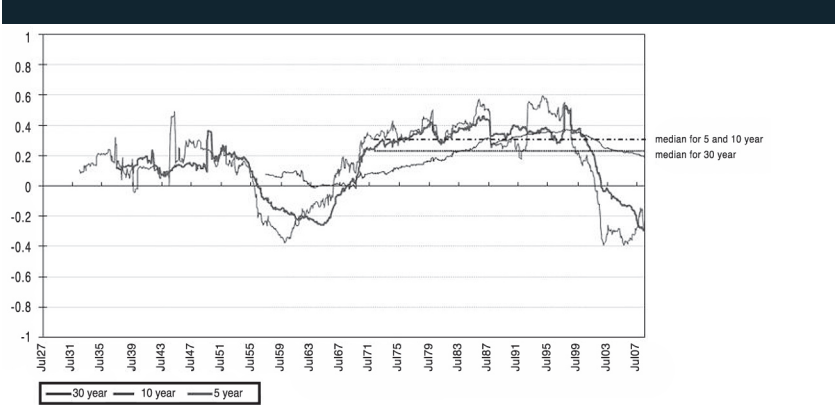
FIGURE NO.4
WORLD VOLATILITY INDICES



SOURCE: SSGA, FACTSET JANUARY 27, 2009.

Figure No.5 looks at correlations of bonds and equities over time. Unlike the long-term return of equities which tends to be pretty stable over time, correlations between bonds and equities tend to move around quite a bit. Therefore when we are designing the asset allocation, we are looking at historic correlations to help make decisions, and the window that we are examining to determine historical correlations can make a big difference. Looking at the 30-year correlations between bonds and equities, it ranges from 0 to 0.4, so the window you choose makes a big difference in how we might opt to allocate across the asset portfolio.

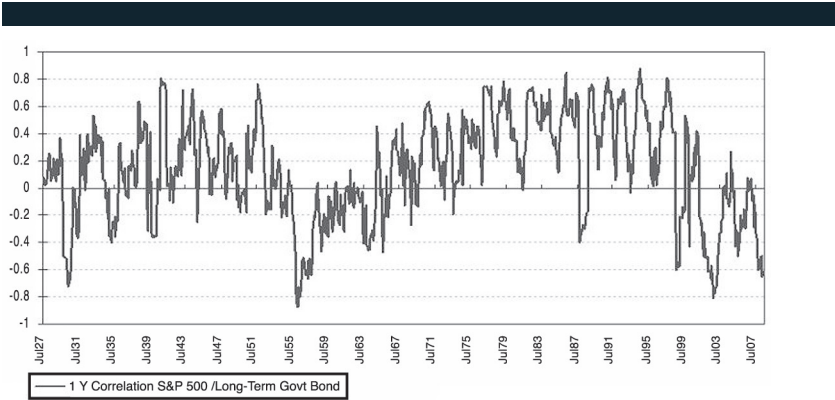
FIGURE NO.5
HISTORICAL CORRELATION BETWEEN S&P 500 AND US GOVERNMENT BOND
(5, 10, AND 30 YEARS)



SOURCE: IBBOTSON, SSGA, DECEMBER 2008.

Now, those correlations can move around quite a bit over the longer-term, but they are much more volatile over shorter periods, and in the bear markets (see Figure No.6). Over the last 10 or 40 years, the correlations tend to move to extreme negatives between government bonds and equities in periods of crisis.

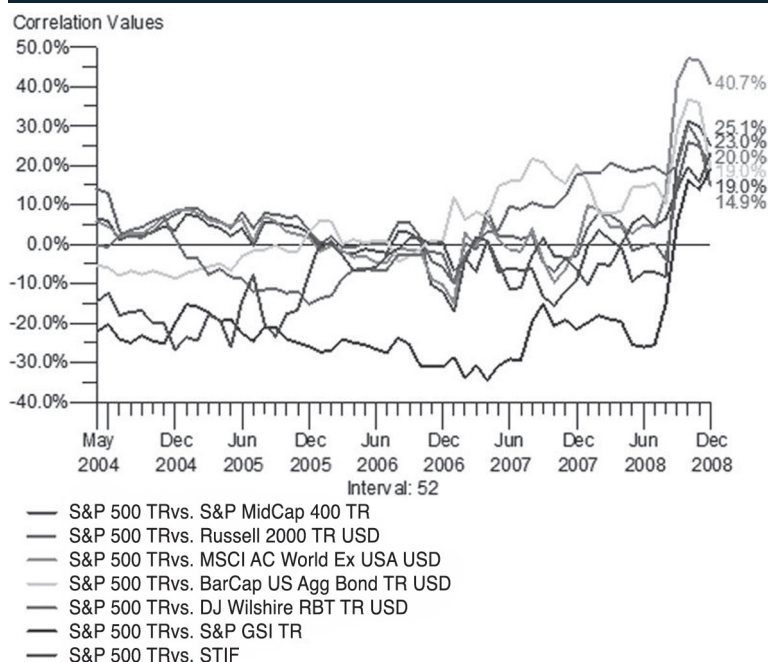
FIGURE NO.6
HISTORICAL CORRELATION BETWEEN S&P 500 AND US GOVERNMENT BOND (1 YEAR)



SOURCE: IBBOTSON, SSGA, DECEMBER 2008.

Risky assets in the second half of last year certainly moved together. Figure No.7 looks at the S&P 500 index versus some other risky asset classes. US stocks versus global stocks, large cap and small cap, corporate bonds, real estate, everything moved together in the second half of 2008. As one would expect, investors like to hold cash during periods of uncertainty, but this bear market over the last 18 months has been unique in terms of just how much investors have wanted to hold cash. The yield on cash is basically zero right now, so investors are clearly more concerned with return of capital than return on capital.

FIGURE NO.7
INDEX RETURN CORRELATION WITH S&P 500 2004-2008
ROLLING PERIOD CORRELATIONS



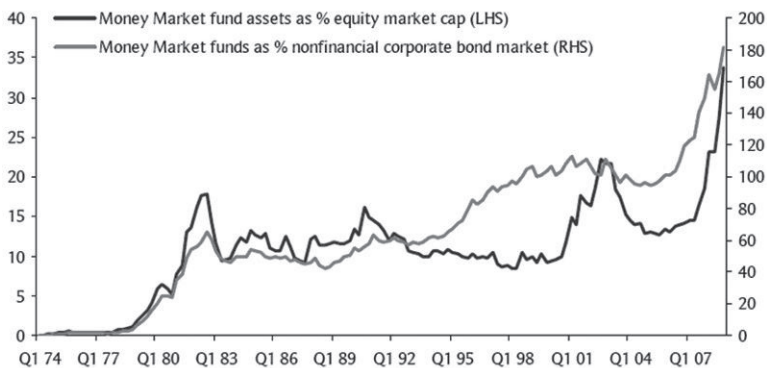
NOTE: INDEX RETURNS ARE UNMANAGED AND DO NOT REFLECT THE DEDUCTION OF ANY FEES OR EXPENSES. INDEX RETURNS REFLECT ALL ITEMS OF INCOME, GAIN AND LOSS AND THE REINVESTMENT OF DIVIDENDS AND OTHER INCOME. INVESTORS CANNOT INVEST DIRECTLY IN AN INDEX.
SOURCE: SSGA, MORNINGSTAR JANUARY 2009.

Closely associated with this investor preference for holding more cash is an increase in trading costs. It has certainly been true on the bond side; if we are looking at Barclay's aggregate, the average bid/offer spread for bonds has been about 7 to 12 basis points

over time. That spiked up to 20 basis points in the second half of last year (see Figure No.8). It has been true in the equity side as well. Bid/offer spreads in global equities tend to average somewhere in the low double digits – that more than doubled in the second half of last year. We have seen spreads revert closer to the historical average in April and May 2009, but volumes in equities are still very low so investors might be able to execute a relatively small equity trade at a reasonable price, but it is still quite expensive to move large blocks of stock.

There are a couple of reasons for this. Certainly, the fear and uncertainty among investors is part of it, but the other issue is that investment banks have reduced the amount of capital that they are allocating to their dealing desks, so without the desks able to intervene and grease the skids for more trading, the cost of trading has increased.

FIGURE NO.8



SOURCE: BARCLAYS CAPITAL, HAVAR, ICI (AS OF DECEMBER 17, 2008).

To summarize, SSgA has identified five key lessons learned over the last 18 months. Those risks are: volatility risk, liquidity risk, downside risk, funding risk and asset allocation risk. These factors have been present since the end of 2007. They are not unique to this bear market, we have seen them other periods of high volatility in the past, and we expect to see them again in the future, so we think that a pension plan would be wise to take these five risks into consideration in constructing an asset portfolio.

We have developed that list of five risks from research that we have conducted at SSgA, but also through consultations with our global client base. These are the concerns that investors are faced with, and this is what they are spending a lot of time thinking about. With this in mind, the investment teams at SSgA have collaborated across asset classes to develop solutions that we think will help our investor base deal with these types of problems and be more prepared for periods of high volatility in the future.

Figure No.9 shows a matrix with the five risks that we have just discussed, and also lists the six solutions that we have come up with to address these five key risks.

The first solution is managed volatility. This is based on analysis that we have conducted at SSgA, and that our peers have also conducted. It looks at one of the most fundamental concepts of investment theory, that there should be a direct relation between risk and return. This is the basis for the capital asset pricing model. When looking across asset classes, CAPM tends to hold, riskier asset classes tend to have better returns over time, cash tends to underperform fixed income, and fixed income tends to underperform equity over time. Looking within the equity market, though, that is not true: riskier stocks do not outperform less risky stocks over time, so a manager that builds a portfolio that tilts towards low-risk stocks and tilts away from higher-risk stocks can deliver equity-like returns over time with substantially less volatility.

FIGURE NO.9

Risks/Solutions	Volatility Risk	Downside Risk	Funding Risk	Asset Allocation Risk	Liquidity Risk
Managed Volatility	✓	✓	✓		✓
Hedge Fund Replication		✓			✓
Risk Parity	✓	✓			✓
Hedge Equity	✓	✓	✓		✓
Exposure Management	✓			✓	✓
Liability Driven Investment (LDI)	✓	✓	✓	✓	✓

SOURCE: PREPARED BY THE AUTHOR.

Another solution that we have identified is hedge fund replication. A pension plan that makes a decision to invest in hedge funds may opt to hire one or more fund managers to help to get diversified exposure to that broad, varied asset class. But, the more diversified your hedge fund exposure, and this is certainly true for hedge fund indices that are quite diversified, the asset specific risk within each of those hedge funds tends to cancel each other out, so the key driver of hedge fund index returns tends to be long and short beta exposures. Through statistical analysis, a manager can identify what those long and short beta exposures are, and then use futures to build a portfolio that has the long

or short exposure to those betas, thereby replicating hedge fund index returns without actually investing in hedge funds. This solution can have a substantially lower cost than investing directly in hedge funds or using a fund of funds; it is more transparent, there is less manager-specific risk, and because the actual trades being implemented are so liquid – done in the future's market - investors can expect to get daily liquidity from their provider. Compare this to some hedge funds that lock up investments for three months or longer.

Risk parity is a third solution that we have identified. Risk parity strategies seek a better balance of risk across multi-asset class portfolios. Take, for example, a simple 60-40 equity-bond portfolio. That portfolio might have a 60-40 split of capital, but 90% of the risk comes from the equity exposure. If an investor was seeking out a portfolio that was more balanced in risk at a 60-40 split between risks, the portfolio would be much more heavily weighted towards bonds, arriving at the desired 60-40 risk split, but the return of that portfolio would have a much lower expected return relative to the original 60-40 portfolio. What a risk parity manager can do is build that lower risk portfolio, then use leverage to increase the expected return of the risk parity portfolio to a level that is similar to the 60-40 equity-bond portfolio, but the risk parity portfolio would have substantially less risk, resulting in the same returns, less risk, and better risk-adjusted returns.

The fourth idea is hedged equity. This is a net long strategy that seeks to add value, both on the long side and the short side. For example, a hedged equity portfolio might be 100% long and 30% short, so all else equal, that portfolio would have a beta of roughly 0.7. We would expect to capture about 70% of the upside of long-only equity investment with a beta of 1, and we would expect to suffer about 70% of the downside in a weak market. But, through skillful stock selection by the manager, the hedged equity portfolio perhaps can perhaps capture 80% of the upside of long-only equities and maybe eliminate 40% of the downside, so there is a much better risk-adjusted return profile than in a long-only portfolio.

Our fifth idea is exposure management. This addresses the higher costs of trading in turbulent times that we have discussed. Investors shy away from rebalancing, partly because of uncertainty, and partly because it is very expensive to do so in periods of high volatility, when transaction costs are high. So, rather than actually trading securities or reallocating across your managers - which can be quite expensive - you can use futures to get the desired exposure and rebalance closer to your policy benchmark.

I mentioned that in 2008, the reluctance of investors to rebalance to a policy benchmark and the willingness to hold more cash helped in the second half of the year, but it has been very problematic since early March 2009. Pension plans should consider implementing these exposures synthetically at a lower cost - rather than trading

securities or reallocating across managers. A pension plan can buy and sell futures to get closer to the policy benchmark, or reinvest excess portfolio cash.

Our final idea is liability-driven investing, LDI. LDI is a framework designed to look at the risks, the duration, and the cash flows of the liability portfolio, and then build an asset portfolio that mimics those risks. When done well, an LDI portfolio can substantially decrease the volatility of the funding ratio.

In summary, these five risks are certainly very significant and impact the ability of pension funds to meet their future obligations to beneficiaries. The last 18 months have raised the profile of the five key risks that we have discussed, but these risks are always present, whether it is a bull or a bear market, a high volatility or a low volatility environment.

These are factors that you need to take into consideration when constructing an asset portfolio. Traditional diversification certainly helps, but innovative risk management, and innovative diversification techniques, can really help a pension fund get an edge that will help meet the promises to retirees going forward.

INTERNATIONAL PORTFOLIO DIVERSIFICATION FOR PENSION FUNDS

MARLIES VAN BOOM ¹

- ¹ Marlies van Boom is a graduate of the Erasmus University in Rotterdam with a master's degree in Business Econometrics. She joined AEGON Asset Management in 1994, where she set up and manages the European Investment Solutions department. Marlies and her team develop portfolio-wide solutions and Asset Liability Management (ALM) related services for AEGON and its institutional clients in Europe. In addition, they provide support and consultancy on asset management for institutional clients.*

INTRODUCTION

In this document I will present my thoughts on international diversification, especially for pension funds in emerging markets. I will show you the added value of diversification, I will give you an overview of some interesting findings in the literature, and I will illustrate the added value with a very simple but practical example. Then, after drawing the first conclusions, I will also tell you something about the added value within a life-cycle investment environment.

As you all know, the credit crisis started with the US housing market and then it hit the financial markets through the subprime-related assets, and then finally it also hit the economic growth throughout the world. Due to all the losses, pension funds took their long-term investment plans under investigation. Important questions they had were, “What are our targets?” “What is our risk profile?” and last but not least, “How could we improve our risk profile?” I would say that my topic could not be timelier. Does diversification actually work during periods of crisis? I will come back to that topic as well.

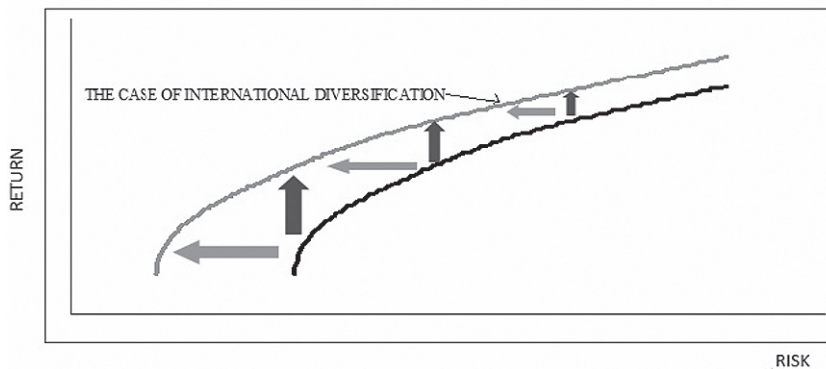
International Diversification: Literature

International literature shows that diversification leads to a better risk-return profile. Figure No.1 shows, as you probably well know, an efficient frontier. On the horizontal axis, it shows the risk, and on the vertical axis, the return. The idea is that if investors are allowed to invest abroad, they can improve their risk profile. This can be either through higher returns at the same level of risk or lower risk at the same level of expected return. The problem is that most of the literature focuses on the developed market, so the question is if this also works for emerging markets.

Most exchanges of emerging markets have not existed for very long, so we do not have much history. The question is: what do we know about these markets? In fact, we know a couple of things. First of all, we know that investors tend to have a home bias; they prefer to invest in companies they know very well. Most of the time these are companies

in their own country. There is something else that we know, and that is that this home bias is not only caused by behavioral aspects, but also by regulations. In Poland for instance, one is not allowed to invest more than 5% of the pension fund investment abroad (this constraint is still under discussion).

FIGURE NO.1
EFFICIENT FRONTIER: EFFECTS OF INTERNATIONAL DIVERSIFICATION FOR DEVELOPED MARKETS



SOURCE: PREPARED BY THE AUTHOR.

What else do we know? Research shows that emerging markets are less financially integrated with the developed markets. Entrance barriers make it very difficult for foreign investors to enter the emerging markets. Therefore, emerging markets have their own characteristics, and they are less correlated with the developed markets. We also know that the emerging market equities are much more volatile than the developed equity markets. On the other hand, they are compensated for that higher risk with higher returns. At the first glance, this does not give us a clear picture of whether an emerging market investor should diversify or not.

International Diversification: Practical Example

Consider a Polish investor, let's call him Lech. Lech has a defined-contribution pension plan and he has to decide how to invest his money. We keep it simple: we assume that Lech can choose between either investments in emerging assets or a combination of emerging assets and developed assets. If he chooses to invest in emerging assets, he can invest in bonds and equities (two assets). And if he chooses for international diversification, we assume that he can invest in bonds and equities of emerging markets, European markets and worldwide markets (six assets).

Table No.1 shows some historical risk and return figures, measured in Polish zlotys. Let's focus on the last two rows, which show the average annual return and the volatility. In the first place, we see that the highest return is for emerging market bonds, with 20.8%, but we also note that it is the riskiest investment, with 21.4%. The lowest risk profile we find in the developed bond markets. We also see that emerging markets of both bonds and equities are far more volatile than developed markets. Let's now construct efficient frontiers and compare those frontiers. We construct two efficient frontiers, one of portfolios that consists of emerging assets, and one of internationally diversified portfolios. The gray efficient frontier in Figure No.2 represents the emerging market asset combinations and the black one represents the efficient portfolios that can be constructed by all six asset classes.

TABLE NO.1

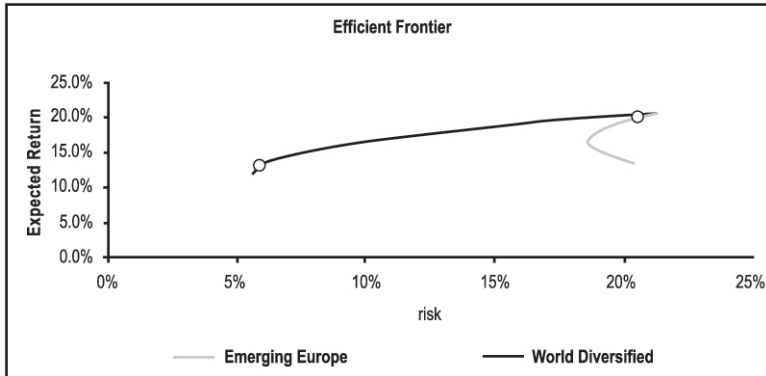
	Equity			Bonds		
monthly	EM EUR	EUR	World	EM EUR	EUR	World
max	14.3%	10.1%	10.5%	14.0%	12.3%	11.8%
min	-20.3%	-14.0%	-11.2%	-44.6%	-5.5%	-9.0%
avg. ret	1.1%	1.3%	1.0%	1.7%	0.8%	0.7%
volatility	5.9%	4.0%	4.4%	6.2%	3.1%	3.6%
Annualized						
Return	13.6%	15.4%	11.5%	20.8%	9.5%	8.6%
Volatility	20.5%	14.0%	15.2%	21.4%	10.8%	12.4%

SOURCE: PREPARED BY THE AUTHOR.

NOTE: ALL INVESTMENTS ARE MEASURED IN POLISH ZLOTY, BASED ON THE SAMPLE PERIOD OF JANUARY 1995- DECEMBER 2006; EM BONDS ARE US-DOLLAR DENOMINATED DEBT.

The conclusion is clear: international diversification does not increase the expected return so much, but it significantly lowers the risk of the portfolio, where you see a move to the left (see Figure No.2). It is an interesting conclusion, but the question is, what does it mean for our Polish investor Lech? What does it mean for his defined-contribution plan?

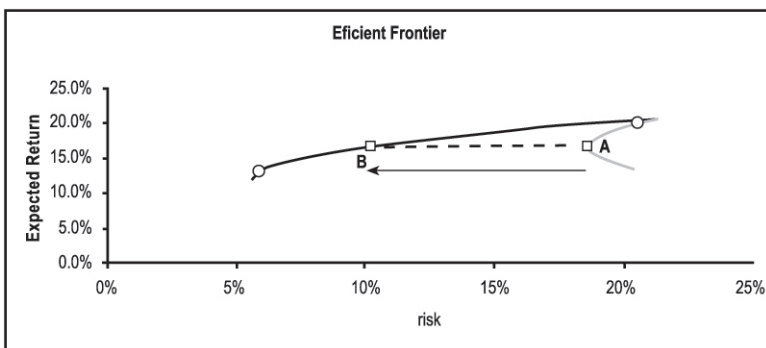
FIGURE NO.2



SOURCE: PREPARED BY THE AUTHOR.

Now let's compare two portfolios (see Figure No.3): to make the outcome comparable, we take two portfolios with the same expected return, Portfolio A and Portfolio B, but they differ in risk. Portfolio A only consists of emerging assets (55% equities and 45% bonds), and Portfolio B is an internationally diversified portfolio. Let's go back to our Polish friend with the defined-contribution plan. Let's assume that Lech saves 1,000 zlotys a year, net of fees, and he invests this money in either portfolio A or B. After 40 years, just before retirement, Lech has invested 40,000 zlotys. What figure No. 4 shows you is the development of the value of the two portfolios, the development of wealth so to speak. The thick line in the middle is the expected wealth for each year. As both portfolios have the same expected return, this line holds for both portfolios. The smaller lines refer to the 95% confidence interval around, so with a probability of 95%, the actual wealth of our investor will lie between these two lines.

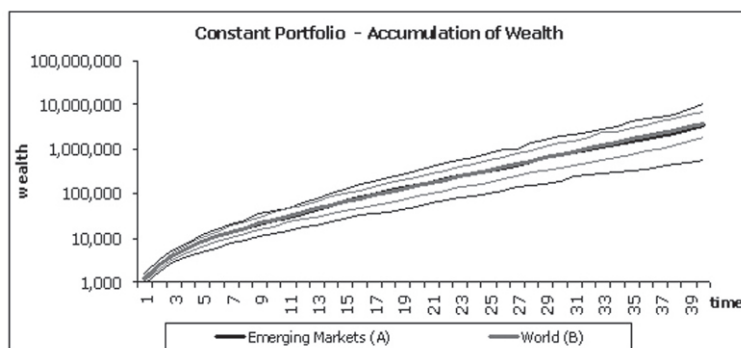
FIGURE NO.3



SOURCE: PREPARED BY THE AUTHOR.

If we look at the end of the 40 years, the expected wealth of both portfolios is 3.3 million zlotys, but while in the worst case of the low-risk portfolio this is 1.5 million zlotys, in the worst case of the other portfolio it is only 600,000 zlotys, which means that we can achieve a risk reduction of 35% (see Figure No.4). Clearly, it is much safer to have a globally diversified portfolio instead of only having investments in emerging markets. I would say, international diversification is extremely important, especially to lower the risk profile of your investments.

FIGURE NO.4



SOURCE: PREPARED BY THE AUTHOR, USING OPTIMAL PORTFOLIO'S CHARACTERISTICS AND AN INFLOW OF 1000 PLZ PER ANNUM, NET OF FEES.

Life Cycle Investing

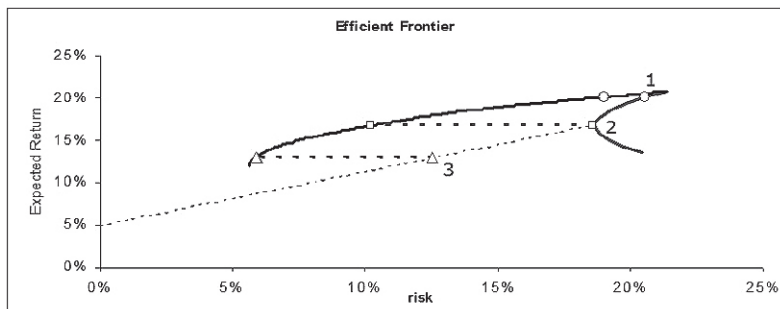
So far, we have studied an investor who continues to follow the same investment profile throughout his life. This might not be the optimal choice. For example, I can imagine that someone who has 40 years to go till retirement is willing to take more risks in order to achieve a higher expected return than someone who is close to retirement and has a preference for capital preservation with a lower risk profile. An investment policy that takes these aspects into account is what I call life cycle investing. An interesting question is how important is international diversification is for different phases of the life cycle.

Now I'll show you the added value of diversification within the life-cycle investments area. I assume a very simple life-cycle program. I assume that as long as the investor has more than 20 years to go till retirement, he invests his money in a very risky portfolio with a very high expected return. And then after 20 and 30 years, he switches to lower-risk profile portfolio. Again, I compare the situation of a worldwide investor with an emerging market investor. What we would like to know is the difference in wealth at the end of the period, after 40 years. One important remark is that in the previous example, we saw that it's difficult for the emerging market investor to switch to a lower-risk

profile. In this example, within the emerging market portfolio, cash is also one of the possible investments in order to lower that risk profile.

Figure No.5 shows the portfolio and statistics we consider. Over time, we move from portfolio 1 to portfolio 2 to portfolio 3. Each time, the expected return of the emerging market portfolio and the world wide invested portfolio is the same, but they differ in volatility. As you can see, the third portfolio for the emerging market investor also includes cash. Let's see what happens. The results are plotted in Figure No.6, which shows the wealth accumulation for our defined-contributed plan of investor Lech. What we see is that the bandwidths of both portfolios are quite similar in the first 20 years. This is because both portfolios are very risky, and have a strong bias towards emerging market investments. However, after 20 years, the difference emerges. The expected return remains, of course, the same, but the risk of the global portfolio becomes lower, which is reflected by the narrower bandwidth. This becomes even more apparent at the end of the sample period. In this example, we were able to reduce the risk by 15% just by international diversification.

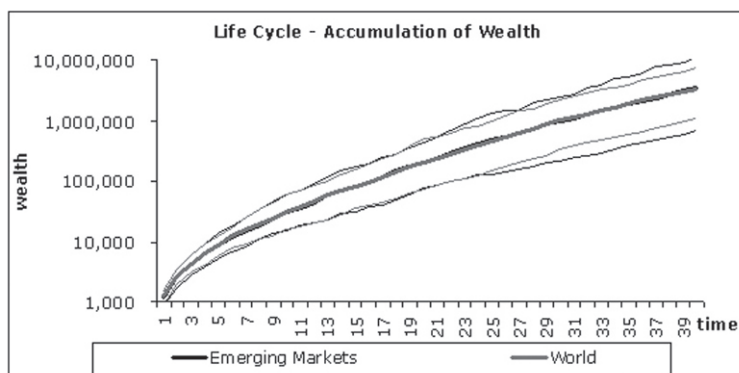
FIGURE NO.5



	World			Emerging		
Portfolio	1	2	3	1	2	3
Return	20.1%	16.8%	13.0%	20.1%	16.1%	13.0%
Risk	19.0%	10.2%	5.9%	20.6%	18.6%	12.5%

SOURCE: PREPARED BY THE AUTHOR.

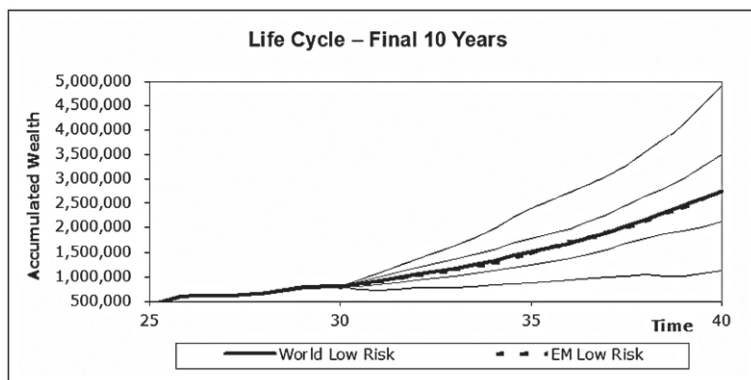
FIGURE NO.6



SOURCE: PREPARED BY THE AUTHOR.

Let's go back to our investor Lech. Suppose he has already saved up for 30 years and he hopes to retire in 10 years. In other words, his current wealth is known and now he wants to invest according to a low-risk profile portfolio. Let's zoom in to the last 10 years. Figure No.7 shows this situation of our investor. It really becomes crystal clear what a difference international diversification can make. The average outcome after 40 years is 2.8 million. In a worst-case situation in case of the global diversified investments the outcome is 2.1 billion, and in the case of the emerging market investment, the worst-case situation is only 1.2 billion. This means that over the last 10 years we can achieve a risk reduction of 50% by spreading our portfolio over a worldwide market.

FIGURE NO.7



SOURCE: PREPARED BY THE AUTHOR.

Diversification in periods of crisis

As you are probably well-aware, it is a well-documented fact that the correlations of the investments tend to rise in periods of crisis. The crisis period of October and November last year, after the blowup of Lehman Brothers, has proven that point. Equities, credits, real estate, commodities all fell sharply. So, international diversification within these asset classes did not work properly. For example, the correlation between emerging markets equities and developed equities was almost 1 during that period.

However, there are two important asset-related issues that are very important regarding our examples. First of all, our examples also included developed market bonds, and these investments generally perform very well during financial crisis, as they are used as safe haven by investors. In other words, the correlation of the developed market bonds with equities in the periods of crisis was almost -1. Emerging market debts, however, had a strong negative performance, as the investors fled out of these more risky investments. Therefore, diversification to developed markets certainly adds value to emerging market investors, especially since emerging markets do not have the safe haven property. The second argument refers to the currency. Emerging market currencies were also hit during the crisis, which is generally the case during a crisis. Unhedged investments in developed market equities or bonds would have protected an emerging market investor against the fall of the markets. For example, we look at the European equities: measured in US dollars, they fell 36%, but measured in zlotys, it was only 16% (see Table No.2).

TABLE NO.2
RETURNS DURING THE CREDIT CRISIS: SEPTEMBER-DECEMBER 2008

		in USD	in PLZ
Equities	EM Europe	-56%	-42%
	Europe	-36%	-16%
	US/Rest of World	-32%	-11%
Bonds	EM Europe Bonds (US\$ denominated)	-15%	10%
	Europe	11%	37%
	US/Rest of World	16%	51%

SOURCE: PREPARED BY THE AUTHOR.

I would say that both arguments are very important. I would even argue that the crisis only strengthens our point of international diversification for an emerging market investor, especially for someone who is close to his retirement age.

Looking Forward

So far, our statement that emerging market investments could benefit from international diversification was illustrated by some simple examples that are based on historical data. We always say that history is no guarantee for the future, so I think that it is good to mention some important issues we should take into account in case we would like to work this out in practice. The first one is, of course, the data. The emerging market exchanges do not have a very long history, so if we would like to base our risk and return figures on that history, we have a slight problem. In our example, we use very short time periods, so that really is an issue that should be taken into account.

My second comment refers to the emerging market bond yields. Emerging market bonds had the best performance in our example. However, bond yields are much lower nowadays, leading to lower expected returns.

Last but not least, globalization. We mentioned that emerging markets have been less financially integrated and correlated with developed markets, but we believe that this will change. We expect that the emerging financial markets will show a higher financial integration with a lower risk premium and higher correlations. In other words, we see changing dynamics. However, we still believe that these developments will not change our conclusions. Maybe the magnitude of the effect could change, but we still believe that international diversification will absolutely have added value. We believe that international diversification will stay attractive for emerging market investors.

Concluding Remarks

First, we saw that emerging market investments are very attractive investments with very high returns, but also with a very high level of uncertainty, a high level of risk. If emerging investors are allowed to invest a substantial part of their portfolio abroad, then we think investors could benefit from the international diversification. In my example, we illustrated that not only the expected return would increase, but that the level of risk can be reduced significantly. This is especially convenient for those who are closer to retirement and have a preference for capital preservation. Regarding the financial crisis, again, I would argue that this even strengthens our point of international diversification. The first reason was the safe haven property of developed market bonds and the second one was the relative strength of certain currencies of developed markets during crisis.

Last but not least, I mentioned that history will not be a guarantee for the future. We see changing dynamics, but we still believe that that will not change our conclusions. International diversification remains critical and can improve the risk profile of the investor's portfolio.



CHAPTER IV

TRENDS IN PENSION FUNDS INVESTMENTS

SHEILA BECKETT. Pension funds and investments in infrastructure

PHILIPPE ROHNER. Thematic investments

DEBORAH FUHR. Exchange Traded Funds

PENSION FUNDS AND INVESTMENTS IN INFRASTRUCTURE

SHEILA BECKETT ¹

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INTRODUCTION

The topic of this document is investing in infrastructure and pension funds. In this document, we will comment from the perspective of managing a large public defined-benefit plan.

Pension funds in the US are new to this asset class; they are just beginning to explore it so, unfortunately, I am not talking from direct experience in investing in infrastructure. US infrastructure tends to be publicly financed, which makes it very difficult for pension funds to invest in this asset class, as opposed to other parts of the world, where public/private partnerships handle the infrastructure investment.

INFRASTRUCTURE: DEFINITION AND WAYS TO INVEST IN IT

What is infrastructure? We have two categories: economic and social. Examples of economic infrastructure include transportation projects, such as bridges and roads; utilities, like water and electricity; communications like telephone companies; and renewable energy. Social infrastructure is self-explanatory: education, health, security primarily prisons and recreation facilities such as parks.

There are various ways in which we can invest in infrastructure. Seven primary ways are identified: ²(i) primary versus secondary market; (ii) equity versus debt finance; (iii) listed versus unlisted companies; (iv) direct versus indirect investment; (v) broad partnerships versus limited partners; (vi) domestic versus international; and (vii) single-sector versus multi-sector investments.

Like other complex asset classes, public pension funds must exercise due diligence when considering investment in infrastructure. There are barriers to pension funds investing in infrastructure (see Table No.1). These barriers are common to most public pension funds: lack of staff and governing board capacity in this area generates the

2 Source: OECD Working Papers on Insurance and Private Pensions No. 32.

highest difficulty, followed by the lack of transparency, and then the very high cost of investing in an asset class like this. We believe that individually directed defined-contribution plans can only use this asset class effectively through a listed partnership trust or an infrastructure fund.

TABLE NO.1
BARRIERS TO PENSION FUNDS INVESTING IN INFRASTRUCTURE

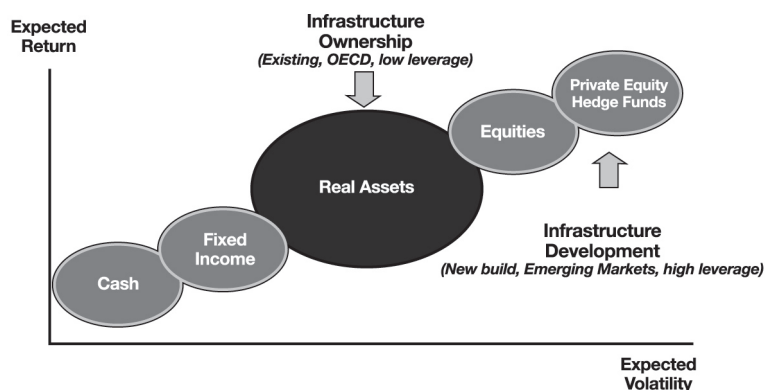
- Novelty
- Lack of knowledge and experience
- Insufficient data
- Lack of familiarity with investment vehicles
- Lack of transparency
- Direct investment
- Short lifespan of investment funds
- Culture
- Fees
- Conflicts of interest and other governance issues

SOURCE: OECD WORKING PAPERS ON INSURANCE AND PRIVATE PENSIONS NO. 32

THE ADDED VALUE OF INVESTING IN INFRASTRUCTURE

The estimated market cap makes infrastructure investment a legitimate asset class for a large pension fund. The most recent information from Standard and Poor's (2007) shows a market cap of US \$2.8 trillion compared to the global equity market cap of US \$44 trillion.

FIGURE NO.1
INFRASTRUCTURE RISK/REWARD PROFILE



SOURCE: LAZARD ASSET MANAGEMENT PACIFIC CO.

As we can see from Figure No.1, the risk return profile of infrastructure is also attractive to pension funds. As we can note, the possibility for expected return is reasonable considering the expected volatility.

TABLE NO.2
EXPECTED RETURNS AND CORRELATIONS OF DIFFERENT ASSET CLASSES

ASSET RETURNS	EXPECTED RETURN	ANNUALIZED VOLATILITY	WORST 5% RETURNS			
Bonds (5-year duration)	5.2%	4.4%	3.1%			
Equities	8.1%	18.2%	1.1%			
Real estate	7.0%	9.5%	(1.3)%			
Infrastructure	9.3%	7.9%	(1.5)%			
Private equity	10.0%	30.2%	(7.3)%			
CORRELATIONS	BONDS	EQUITIES	REAL ESTATE	INFRASTRUCTURE	PRIVATE EQUITY	
Bonds	100%	11%	40%	20%	6%	
Equities		100%	8%	15%	34%	
Real estate			100%	21%	5%	
Infrastructure				100%	12%	
Private equity					100%	

SOURCE: MORGAN STANLEY ASSET-LIABILITY MODEL (DATA AS OF MAY 2007).

Table No.2 shows that infrastructure investments provide diversification, and could have a role in assisting pension funds in meeting their investment policy return goals. We can see that infrastructure has an expected return of 9.3% with a volatility of 7.9%, which makes it fairly attractive, and it may be a good fit within a specific portfolio. The Table shows 2007 data, so obviously, the most recent downturns are not reflected. However, we do not expect the figures to change significantly, because these are anticipated returns, which are not necessarily based on previous experience.

Table No.3 shows the annual average return, the annual volatility and the Sharpe index, which also shows infrastructure, is a very attractive possibility for pension funds analyzing additional diversification and returns. Table No. 4 shows the diversification potential due to the low correlation with traditional asset classes.

TABLE NO.3
INFRASTRUCTURE RISK-ADJUSTED PERFORMANCE ANALYSIS: Q3:1995-Q2:2006

Asset class	Average Annual Return	Annual Volatility ^{a,b}	Sharpe Index	Performance Rank ^c
Composite Infrastructure	22.38%	16.03%	1.05	3
Infrastructure	24.89%	23.42%	0.83	6
Toll Roads	25.65%	24.39%	0.82	7
Airports	8.05%	30.67%	0.08	10
Utilities	21.93%	15.65%	1.05	4
Unlisted Infrastructure	14.11%	5.83%	1.47	2
Direct Property	10.90%	1.46%	3.67	1
LPTs	13.75%	7.92%	1.04	5
Stocks	12.91%	10.97%	0.67	8
Bonds	7.20%	4.28%	0.39	9

a. Annual volatility is the annualised standard deviation of the respective quarterly return.

b. Property volatility has not be adjusted for valuation-smoothing.

c. Performance rank is based on the Sharpe index.

LPTs: LISTED PROPERTY TRUSTS.

SOURCE: HSU WEN PENG & NEWELL GRAEME (2007)

TABLE NO.4
INTER-ASSET CORRELATION MATRIX: Q3:1995-Q2:2006

	Composite Infrastructure	Infrastructure	Toll Roads	Airports	Utilities	Unlisted Infrastructure	Direct Property	LPTs	Stocks	Bonds
Composite Infrastructure	1.00									
Infrastructure	0.86*	1.00								
Toll Roads	0.85*	0.99*	1.00							
Airports	0.38*	0.40*	0.26	1.00						
Utilities	0.82*	0.42*	0.42*	0.14	1.00					
Unlisted Infrastructure	0.31*	0.36*	0.36*	0.26	0.16	1.00				
Direct Property	-0.08	0.03	-0.01	0.36*	-0.21	0.26	1.00			
LPTs	0.52*	0.40*	0.39*	0.06	0.47*	0.24	0.19	1.00		
Stocks	0.15	0.21	0.14	0.54*	0.01	0.06	0.14	0.17	1.00	
Bonds	0.57*	0.38*	0.38*	-0.03	0.57*	0.17	-0.12	0.49*	-0.21	1.00
Inflation	-0.20	-0.22	-0.21	-0.23	-0.12	-0.27	0.10	-0.13	-0.09	-0.25

*: significant correlation (P<5%)

LPTS: LISTED PROPERTY TRUSTS.
SOURCE: HSU WEN PENG & NEWELL GRAEME (2007)

POLICY RECOMMENDATIONS

To conclude, a few policy recommendations: to safeguard the pension funds, especially in the area of investment and infrastructure. Pension fund managers should seek legislation establishing pension funds as a trust for the exclusive benefit of the plan participants. The prudent person and whole portfolio approach should be established; and, finally, efforts by outsiders to direct investments or divert funds should be opposed. We believe the most important issue is to work towards removing the current investment restrictions that apply, perhaps even before implementing these other policy recommendations.

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THEMATIC INVESTMENTS

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- ¹ *Philippe Rohner holds a BSc from the University of South Carolina and an MSc from Lamar University, both in Chemical Engineering. Philippe also holds a PhD in Industrial and Applied Chemistry from the Swiss Federal Institute of Technology and an MBA specializing in Finance from the University of Strathclyde (Glasgow). Currently, Rohner is Senior Investment Manager of Pictet Asset Management (PAM), working in the Sector & Theme Funds team, and managing the Water and the Clean Energy Funds. He originally joined Pictet & Cie in 1998 as an Equity Analyst with responsibility for the Swiss Chemicals sector.*

The purpose of this document is to share some of the experiences we have had managing thematic investments. Moreover, we will try to link these to pension funds focusing on the commonalities between them.

As portfolio or pension fund managers we have to deal with often conflicting requirements such as maximizing returns and diversifying investment risks efficiently, i.e. get the best performance on a risk adjusted basis, or to choose the right growth versus value profile to meet our performance objectives. These are some of the challenges we would like to elaborate on by looking at two thematic funds that we are directly involved in managing: water and clean energy.

WATER INDUSTRY

First of all, we want to establish what we mean by investing in the water industry. Water can be seen as a commodity. Call it rain, it's free, you can access it freely, i.e. you don't need a license to collect and use or "consume" it. On the other hand, we can regard water as a service rather than as a commodity. In this case the service is to provide "water" when requested, in the amount desired, in the quality required. To assure this service one needs infrastructure and technologies to collect, treat and deliver the "rain". What is interesting for investors to note is that this service is very energy and asset-intensive, i.e. a large amount of energy and investments are needed to provide a unit of revenue. This asset base is however not visible as most of the infrastructure is "hidden" away from the investors in the form of pipe networks, collection and treatment plants. The scarcity of listed equities within the major indices does not help matters when it comes to increasing awareness of the water industry.

My role as a portfolio manager is to start by understanding the industry fundamentals and market dynamics in which companies active in the water industry operate. From a revenue point of view, this industry is about the size of the pharmaceutical industry. However, as it is not very visible and accessible to investors our initial task is to identify what is available in terms of publicly listed equities. To give you an idea, there are about 240 listed companies in the world, out of roughly 37,000, which address the market we are about to discuss.

As a longer term investor, one of the commonalities pension and theme funds have is anticipating and monitoring secular growth trends. We emphasize the word secular, i.e. longer term trends such as demographics, urbanization etc. and not cyclical growth drivers, such as economic developments over a 12-18 month time span. In the traditional approach to portfolio management, one is given a benchmark which serves both as a risk management tool and as a basis for determining the quality of performance. Operationally, the portfolio manager generally uses a “top down” regional and sector allocation based on a given macro economic scenario. Individual stocks are then chosen to match the macro scenario (value vs. growth). Secular growth investing is a bottom-up approach, focusing on value drivers that are likely to be around for a longer time frame, say 3-5 years.

In other words, shorter term cyclical factors are unimportant per se, but determining the attractiveness of equity investment where the longer term perspectives play a major role is critical. As such, one is less concerned about what the US dollar is going to do over the next few months, or the decision to buy or sell, less so about what the economy is going to do in the shorter term. As a secular investor, I worry more about the longer term drivers and how they are likely to be impacted by current developments over the long term.

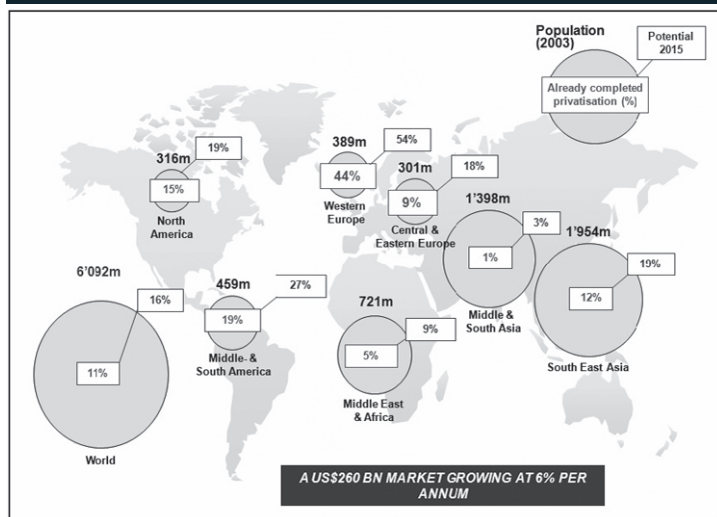
One of the key drivers for the water industry is urbanization. The more a society urbanizes, the more this industry will develop and grow. Therefore, as long as this fundamental long-term driver continues, the secular trend will remain intact. Moreover, the more a society urbanizes, the greater the access to services linked to the water industry is required. If we live in the countryside, we can collect “rain” water and build a septic tank to dispose of your waste-water; whereas in a city with millions of people, this model does not work, which means that somebody has to provide that service. In this particular case of thematic investing in water, we not only have to consider demographics but also urbanization.

What are some of the issues to consider when investing in this particular segment or theme? One aspect would be the availability and state of the infrastructure relative to where there is - or could be - water scarcity issues. One realizes that in these regions, the infrastructure is either non-existent or out-of-date. Thus when investing in the water segment investment opportunities arise from both emerging and developed equity markets. Looking at the water scarcity perspective, the US is just as attractive a market as China or Chile for equity investors. If liquidity risk is a major concern for the portfolio manager, the investable universe is determined wherever listed equity exists with companies which either provide water services, or are suppliers in ancillary industries. Another aspect to monitor is the outsourcing of water services by municipalities. I wish to emphasize outsourcing and not privatization, because outsourcing also implies industrial outsourcing. Be it municipalities or industrial groups, managing water

infrastructure requires ever more complex expertise which has little or no synergies with their core technical and managerial skills. This implies that water is not a segment specific to the domestic market, but much broader and inclusive of industrial markets driven by the need to outsource, to those more able to do so.

Figure 1 shows an example of the risk long-term investors in this market segment are taking and which we monitor closely. As equity investors we want to know how fast the outsourcing is taking place. In this particular example, we focus on municipal markets. According to Envisager, 11% of the global population today is serviced by a private operator, many of which have shares listed in the stock market. Envisager expects this number to grow to 16% by 2015. This monitoring of secular trends is determinant in our investment decisions. Thus one of the key markets to watch is France which developed the industry following the model based on concessions, which meant the outsourcing of the operating responsibilities to operators who do not own the underlying assets. Another key market is England, which has a more recent history than France, and where operators, and by implication the shareholders, own the assets, but water tariffs are based on returns set by a regulator.

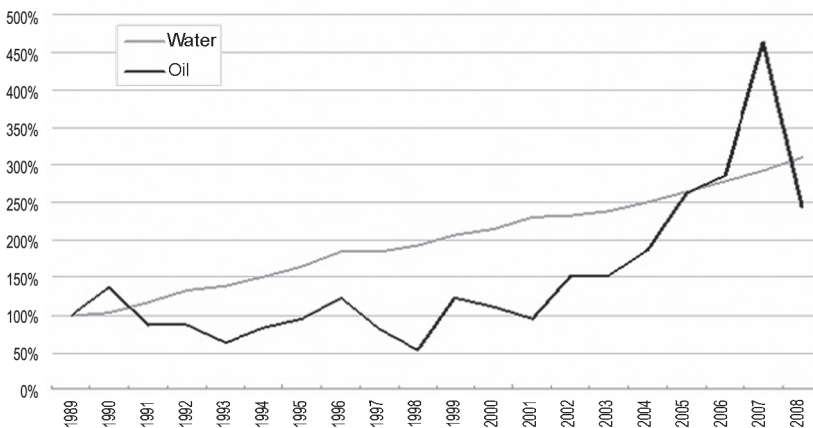
FIGURE 1
WATER SERVICES OUTSOURCING – FORECASTS: MARKET POTENTIAL 2003-2015



SOURCE: DAVID OWEN, MANAGING DIRECTOR ENVISAGER LTD, 2007

Another important aspect for a longer term investor is to monitor water tariffs. One thing we observe with water tariffs' trends is that they are increasing in a steadfast way, irrespective of where in the cycle the economy finds itself. It gives investors unusual visibility of what sort of returns to expect if the trend continues. Figure 2 shows a good example, California, where we encounter all the water issues which can be seen worldwide. Most of the water demand is in Southern California, an area facing serious water scarcity issues as most of the water supply is in Northern California. Approximately 20% of the power consumed in the state of California is used to transfer water, which implies a direct link between water and energy and also needs to be monitored. The point here is that many commodities such as oil have very high volatility, whereas water tariffs tend to be very stable given the right regulatory policies and political support. This is what makes it attractive to invest in water related projects.

FIGURE 2
HISTORICAL WATER PRICES IN CALIFORNIA: 1989-2008

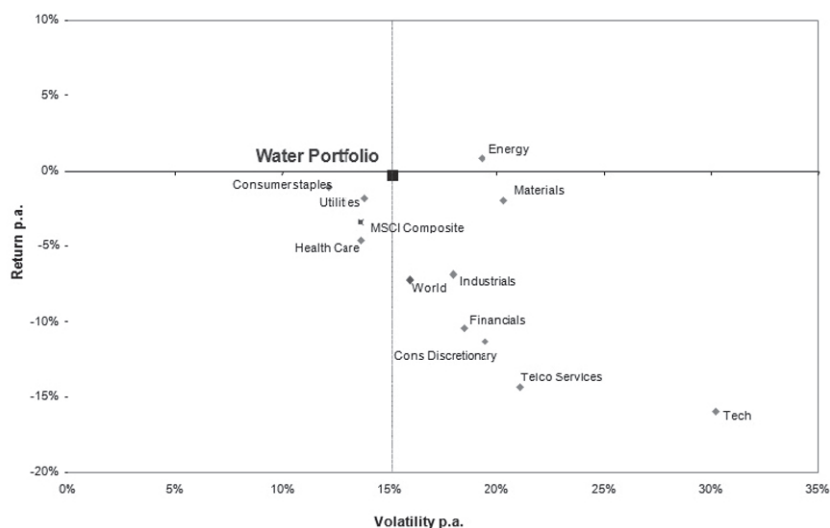


SOURCE: SEC FILING AMERICAN STATES WATER 2008, BLOOMBERG OPEC CRUDE OIL BASKET.

What does an investor get by investing in the water-theme in terms of risk adjusted returns Figure 3 illustrates the risk-return profile of a portfolio of water-related listed equities, which I deem to be unique. In a way, we have a risk-return profile which none of the MSCI sectors individually, or in combination, have been able to reproduce during the past 10 years. What is different in the respective investment universes? It appears that theme portfolios, such as water related portfolios, tend to have a significantly larger exposure to small mid market cap names than the MSCI index, which provides the growth bias. I believe the main message in Figure 3 is that by selecting stocks based on

a common theme, rather than by region or sector, one is perhaps better able to diversify investment risks efficiently over the longer term.

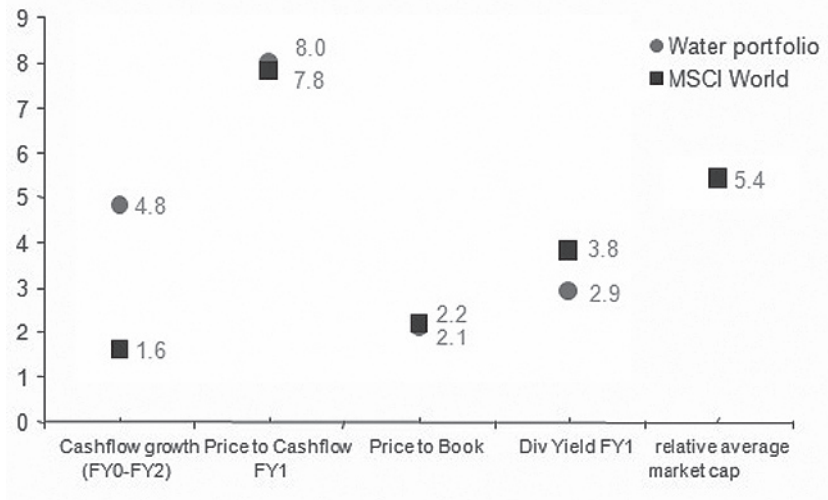
FIGURE 3
RISK/RETURN PROFILE OF A WATER INVESTED PORTFOLIO (JAN 2000 – MAR 2009)



SOURCE: PICTET ASSET MANAGEMENT, FACTSET.

Does an investor pay a premium to invest in themes? In terms of valuation matrices the current portfolio has a relative cash flow growth similar to the index of global stocks found in the MSCI. Comparing price to cash flow and price to book matrices, the two are similar although the dividend yield is slightly more attractive for MSCI. At the time this chart was made, there was no premium being discounted by the market for the growth in cash flow. I would further argue that the level of the quality and visibility of the forecasts is greater for the water theme than those of the MSCI.

FIGURE 4
WATER SECTOR CHARACTERISTICS RELATIVE TO WORLD EQUITY MARKET



SOURCE: MSCI, IBES, WORLDSCOPE, PICTET ASSET MANAGEMENT, AS OF 04/02/09.

In summary, although the water industry offers a relatively small number of stocks, it allows for sufficient diversification be it across asset classes (small/mid vs. large caps), regionally (Europe, North America, Emerging Markets), or on a sector basis (Industrial, Utilities) to produce a balanced value/growth profile which - over the years - has provided a superior risk adjusted return relative to more diversified standard equity indices. Hence the theme approach to investing allows one to focus on long-term secular growth drivers.

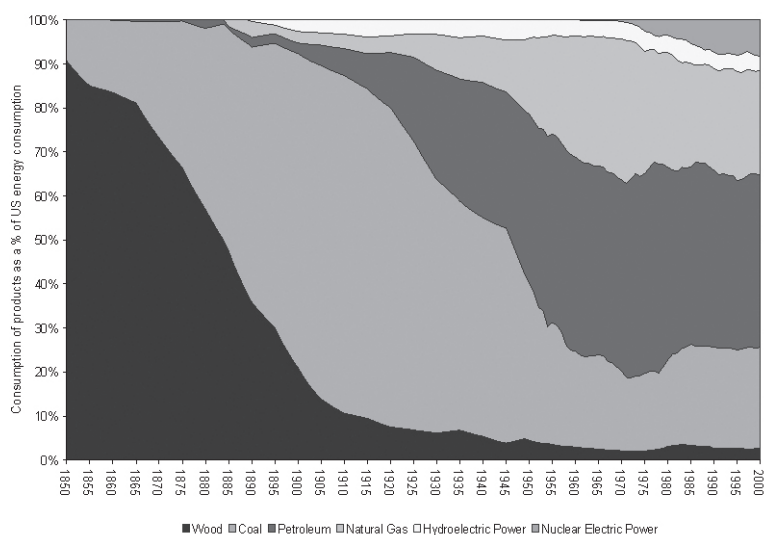
CLEAN ENERGY

A second theme I would like to elaborate on is clean energy. The question here, as in any theme, is how best to define the theme from a portfolio management perspective. Obviously, when attempting to define such a theme there are several aspects to consider, such as preconceived views on renewable energy, alternative energy, causes of climate change, etc. However, we do not believe that is the best way to invest and I will try to illustrate why.

Our approach is to adopt a longer term view and identify the secular growth drivers of change. Figure 5 illustrates a longer term horizon and one quickly concludes that

there have been energy transitions. Basically, we have gone from wood-based to coal-based economies, then to oil-based economies, and now we appear to be entering a nexus where security of supply concerns combine with environmental challenges such as reducing the CO2 emissions, resulting in the need to change the energy mix.

FIGURE 5
ENERGY CONSUMPTION BY TYPE

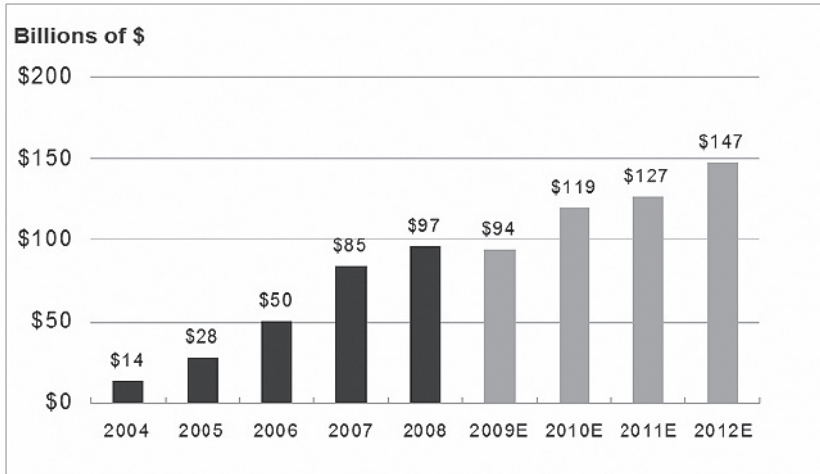


SOURCE: U.S. DEPARTMENT OF ENERGY.

Seen in the longer term there is a change that needs to occur, which in turn will generate investment opportunities. This shift is not dependent on the macroeconomic environment per se. It might be slowed, it might be accelerated, but the trend does not change fundamentally as a result of where we are in the economic cycle. There is a caveat, we may discover energy sources which we have never seen to date!

Figure 6 shows that even secular growth is not linear. If you look at the transition from 2008 to 2009, it illustrates a slight decrease. Despite short-term cyclicity, the long-term trends in dealing with environmental issues as well as the need to change the energy mix will remain.

FIGURE 6
NEW INVESTMENT IN RENEWABLE ENERGY



SOURCE: NEW ENERGY FINANCE, FEBRUARY 2009 (FORECASTS FOR 2009-2012 ARE PRELIMINARY NUMBERS).

When looking from an energy transition perspective, why is it now interesting for investors? Basically, throughout history, we have not had to deal with a problem such as the one we are facing at the moment, that is, the strong interrelationship between energy and environment on a global level. We have always had this problem on a local level. For example, the Romans deforested most of the Mediterranean basin, but that was a regional issue. Now, we are talking about a global problem. When looking at the future energy mix, we have to take into account the environmental consequences of our choices. This creates investment opportunities, and the purpose of this thematic fund is to identify and invest in them if they are appropriately valued to the risk adjusted returns likely to be generated.

What are the longer term drivers of clean energy? One of them is obviously the energy environment nexus regarding not only climate change, but the broad environmental issues of energy, how we source it and how we choose to use it. At the risk of being too simplistic, we need to de-materialize our energy mix away from resources to forces; and we also need to reduce the energy density at the generation, transmission and consumption stages. In addition to these come traditional energy issues such as energy security and independence, i.e. longer term concerns over dependence on imported energy from a non-renewable source.

What sort of investment opportunities are there for the longer term investor viewing the theme, in this case energy, as previously discussed? Figure 7 illustrates the opportunities both on the supply and the demand side. Our definition of the theme, that is the need to reduce the environmental impact of the energy mix, identifies the issue of demand rather than focusing on just generation, which usually tends to be the focus when seeking for investment opportunities. In that sense, is investing in reducing energy demand the same investment opportunity as investing in alternative or renewable energies? It certainly is a very important factor to consider. If we use less, we deal with a lot of the issues on the supply side.

Back to Figure 7. On the supply side, there are both carbon-free energies, such as solar, wind, etc, and low carbon energies, which are likely to play a role in the transition we are talking about, and thus provide investment opportunities. Although they are not renewable strictly speaking, they will play an increasingly important role in the long run as they act as a back-up supply to the renewable and alternative sources. On the demand side, energy efficiency is what it's all about.

The issue here is summarized by the split-incentive problem. What is a split-incentive problem? It's when the owner of the asset and the user of the asset are not the same person, which is often the case. The easiest example is when you own or rent an apartment or a house. The owner of the house has no incentive to make it more energy efficient, because he or she will not obtain the benefit. The renter or user most certainly will not invest in something he or she does not own. As long as we have not dealt with that problem there is obviously going to be an issue. However I am sure that we will find ways in the future to deal with it. Another example would be utilities. Utilities are built to make, produce, and sell more "electrons", not to reduce consumption. Therefore the utility regulator has to change the compensation model to take into account that less is more. This is an investment opportunity for those who understand this and build business models in which one can invest.

FIGURE 7
CLEAN ENERGY OPPORTUNITIES

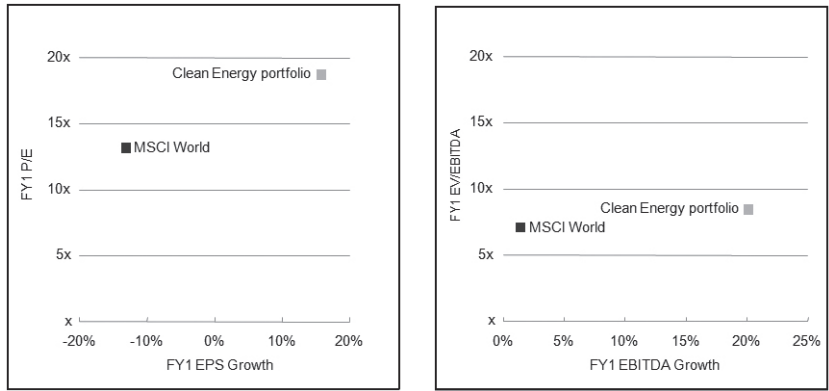


SOURCE: PICTET ASSET MANAGEMENT.

Regarding the financial aspect, clean energy is similar to water. We are talking about 250 companies which have listed their equity. Figure 8 and Figure 9 paint a similar picture to that of the water example, i.e. an attractive price to growth profile. The difference between the two is that growth has a higher risk (price volatility) in the case of clean energy. On a cash flow basis, or on an earning basis, the market does not fully discount the project growth. The point I wish to illustrate here is that you get better growth but you do not pay the full price as a long term investor. And equity investing is all about growth.

FIGURE 8
P/E VS. EPS GROWTH²

FIGURE 9
EV/EBITDA VS. EBITDA GROWTH³



SOURCE: FACTSET, AS OF 27/02/09.

- 2 The P/E ratio (Price-to-Earnings ratio) of a stock is a measure of the price paid for a share relative to the annual net income or profit earned by the firm per share (usually called EPS – Earnings per Share).
- 3 EV/EBITDA (Enterprise Value/Earnings Before Interest, Taxes, Depreciation and Amortization) is a valuation multiple that typically is applied when valuing cash-based businesses.

CONCLUSIONS

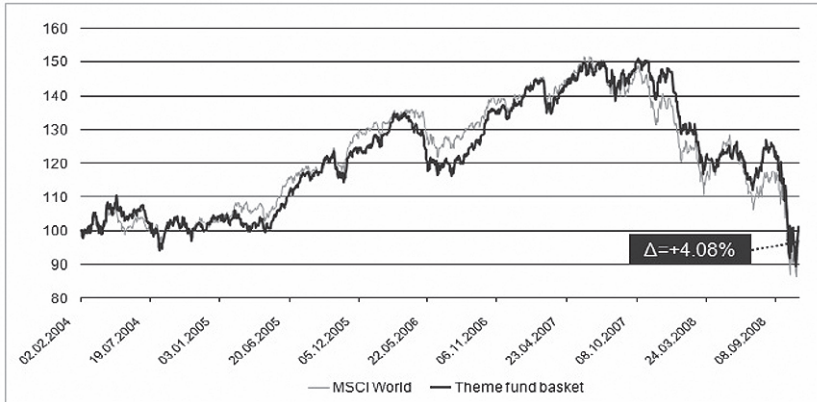
First, we would like to address the issue of incorporating the cost of using the “bio-infrastructure”, i.e. externalities. “What is the marginal cost of disposing of CO₂?” Not surprisingly the numbers come at about five or six fold different: instead of 10 to 15 Euros per ton of CO₂, it is rather around 80 Euros per ton. That decision-making process makes one wonder as to what one should consider when making longer-term investment decisions.

We would also like to address sector as opposed to theme-based investing. I am talking about themes such as clean energy, water, security, digitalization of communication and security. Traditional sectors are not built that way, so when you try to decide, “do I invest in financials? do I get out of materials?” the decision is not based on longer term drivers but on shorter term macro factors. It is difficult to identify and access longer-term themes. MSCI, or similar set of indices serve a role other than identifying themes with secular growth profiles. Indices thus do not serve the purpose of identifying investment opportunities, be it for clean energy and water, or other themes.

Finally, theme-based investing is process and not benchmark-driven. This is a very important point in my view. If the benchmark itself does not provide longer term risk adjusted return perspectives, what is the purpose of investing? Theme investing requires a disciplined active management of both selecting opportunities to invest and taking into account the associated risks. But we have to have a clear process for doing this. A point often overlooked when selecting an investment manager of theme funds.

As a concluding remark, I would like to draw attention to Figure 10. What we did here was produce a basket of the various themes equally weighted that we manage as long-only mutual funds. By doing so, you are diversifying the risk associated with a specific secular growth profile. Noteworthy is that you do obtain a better performance in this time period than if you had invested in the MSCI world index, further supporting the case for theme based approach to investing.

FIGURE 10
SIMULATION OF HISTORICAL PERFORMANCE OF AN EQUALLY WEIGHTED THEME
FUND PORTFOLIO



NOTE: PAST PERFORMANCE IS NO GUARANTEE OF FUTURE PERFORMANCE. PERFORMANCE DATA DOES NOT INCLUDE THE COMMISSIONS AND FEES CHARGED AT THE TIME OF SUBSCRIBING FOR REDEEMING SHARES.
SOURCE: PICTET; IN EUR; HISTORICAL PERFORMANCE OVER 5 YEARS FROM JANUARY 31, 2004 TO JANUARY 30, 2009, MONTHLY REBALANCING.

So why should pension funds consider theme-based investing? First, thematic investment offers a longer term approach to investing and thus is more aligned with pension fund investment objectives. Secondly, theme-based investing provides a global equity exposure not biased towards a particular index while maintaining a structured approach in the portfolio construction. Thirdly, theme investing enables the systematic identification of stocks which have common longer term drivers. The equity markets are in constant evolution. Thematic approach to investing provides a systematic way to address this challenge.

EXCHANGE TRADED FUNDS

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This document is intended to explain what Exchange Traded Funds (ETFs) are, some of the history, and also how ETFs are being used by pension plans and their asset managers.

Last year, ETFs could actually say it was a great year for them. It was one of the few products for which the Lehman situation became a very positive thing. If you look at pension investment trends in products, ETFs can now be seen in many sovereign wealth funds, and pension funds. Even retail investors use ETFs within their retail pension fund schemes, in the US, in the UK as well as in or other markets.

ETFs PRODUCT OVERVIEW

An ETF, at the end of the day, is an open-ended index tracking fund. What is unique about them is that although traded like shares, the fund itself is held by a custodian. The assets are ring-fenced from other investors, so in a doomsday scenario such as what happened to Lehman, if something was to happen to an ETF manager, a new manager would be appointed and the fund would carry on.

ETFs are regulated in the same way as other funds that you may be investing in. When you want to buy ETFs, you call a broker, and trade and settle like any other share, and like shares, you pay commissions. What is unique though is that ETFs are transparent, so you can see its components on a daily basis. One of the reasons you have seen pension plans use ETFs is that often, there are small teams responsible for managing sizeable amounts of money, who are not able to pick stocks, bonds or invest in commodities around the world. So, should you want to invest in infrastructure, you can use an ETF to invest in a determined infrastructure index. Or if we want exposure to clean energy, alternative energy or water, there are ETFs that allow us to invest very easily. If our end-goal is to invest in individual stock, we can actually see what those ETFs include and can do so, instead of holding the ETF longer-term.

The other thing that is unique about ETFs is the trading volume. Last year, in the US, the trading of ETFs accounted for anywhere from 38% to 43% of all equity trading volume

in the US. When you look at European ETFs, you would think they do not seem to trade a lot. The issue is that in Europe ETF trade reporting is not required under MiFID², so therefore less than a third of the trades get reported on the stock exchange.

The important thing to remember with ETFs is that you actually have two forms of liquidity: you have normal secondary liquidity like any other share, or when you have a large order-say more than 50,000 units - the brokers can trade the underlying basket. Here, in essence, you have a primary trade like a program trade, and a secondary trade like stock. So ETFs are really very liquid.

Chart 1 shows some key data at the end of April. Globally we have 1,678 different ETFs, they have over 3,000 listings, there are 90 different managers of ETFs and they are trading on 43 different exchanges around the world with over 700 billion in assets.

CHART 1

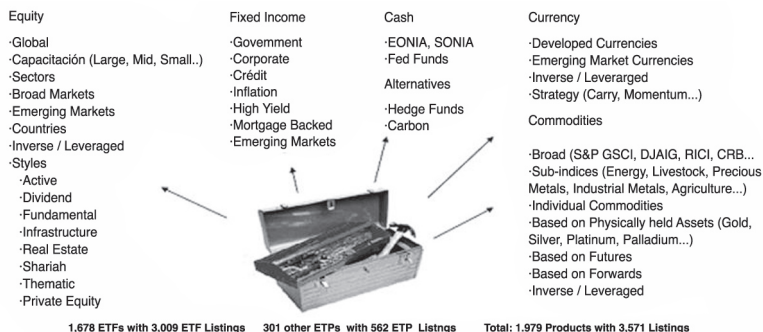
Metric	Global		US		Europe		Japan		Asia ex-Japan	
	Apr-09	YTD Change(%)	Apr-09	YTD Change(%)	Apr-09	YTD Change(%)	Apr-09	YTD Change(%)	Apr-09	YTD Change(%)
AUM (US\$Bn)	706.87	-0.5%	480.22	-3.4%	151.37	6.0%	24.63	-10.2%	25.24	8.3%
# ETFs	1,678	5.6%	697	-0.1%	701	10.9%	63	3.3%	103	9.6%
# Providers	90	5.9%	18	0.0%	32	10.3%	5	0.0%	35	2.9%
# Exchanges	43	0.0%	3	0.0%	21	10.5%	2	0.0%	13	0.0%
Daily Trading Volume (US\$Mn)	76,556.93	-5.0%	72,529.09	-5.8%	2,255.38	11.4%	166.40	-1.7%	800.73	52.3%

DATA AS OF END APRIL 2009.

SOURCE: GLOBAL ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, BLOOMBERG.

Why have ETFs become popular? The key idea behind ETFs is that they are a tool to help institutional and retail investors to invest where, when and how, they would like to. We have seen a lot of interest in money market ETFs, recently with high yield, and we have also seen interest in commodity products. Figure 1 shows the different uses of ETFs. You can see that ETFs are of assistance if we want to invest in broad global exposures such as an MSCI World, MSCI emerging markets, and individual countries; or if we want market cap indices, other types of thematic, real estate, fundamental indices, exposure to dividends, and fixed income.

FIGURE 1



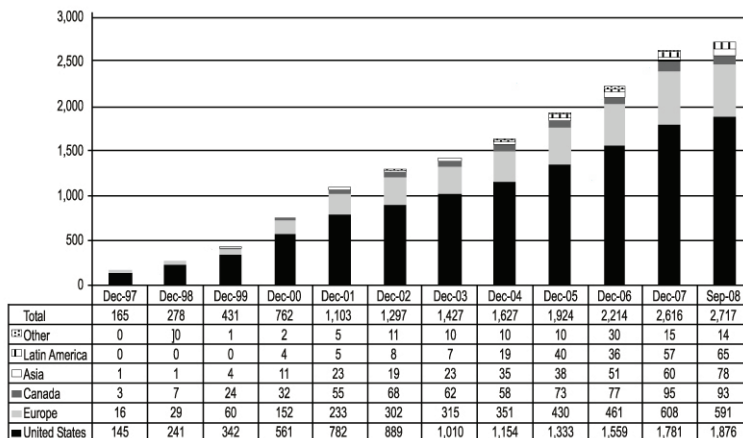
*OTHER ETPs (EXCHANGE TRADED PRODUCTS) INCLUDE HOLDERS (HOLDING COMPANY DEPOSITORY RECEIPTS), ETCs (EXCHANGE TRADED COMMODITIES), EXCHANGE TRADED CURRENCY PRODUCTS, AND EXCHANGE TRADED NOTES. AS OF END APRIL 2009
SOURCE: GLOBAL ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS.

DEMAND AND SUPPLY FOR ETFs

Who is using ETFs? As you can see in Figure 2, only 165 institutions were using at least one ETF as of December 1997. By 2008, the number has grown to 2,717 institutions. The data is not perfect, given that I meet many clients who use ETFs, but are not captured in the mutual fund and data shown below, when I am travelling.

FIGURE 2
GROWTH IN INSTITUTIONAL USERS OF ETFs

Number of Institutions



SOURCE: ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, THOMSON FINANCIAL.

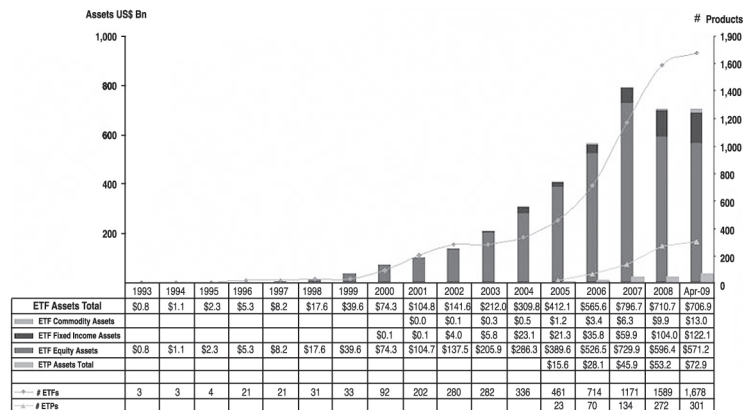
The important trend to note in Chart 2 is that ETFs are used by investment advisors, hedge funds, private banks, and all types of institutions, as well as by retail. So whether it is a 200 euro investment, or a one billion euro investment, you get the same economies of scale, regardless of the amount. This is one of the key benefits of ETFs.

CHART 2
TYPES OF INSTITUTIONAL USERS OF ETFs

Type of Institution	Dec-97	Dec-98	Dec-99	Dec-00	Dec-01	Dec-02	Dec-03	Dec-04	Dec-05	Dec-06	Dec-07	Sep-08
Investment Advisor	109	200	319	549	802	923	1,023	1,167	1,380	1,564	1,946	2,014
Hedge Fund	9	20	30	73	114	144	152	180	209	285	340	388
Bank and Trust	14	19	30	67	92	109	120	139	161	174	189	181
Pension Fund	5	8	9	15	22	28	28	33	45	36	45	48
Brokerage Firm	14	11	15	15	16	25	28	31	37	40	45	44
Insurance Company	13	19	27	39	50	60	65	66	74	80	23	14
Endowment Fund	1	1	1	3	3	3	5	5	7	8	9	9
Private Equity	0	0	0	0	0	0	0	0	1	4	7	8
Holding Company	0	0	0	0	0	1	2	3	3	4	3	5
Corporation	0	0	0	0	1	1	1	1	4	16	5	4
Foundation	0	0	0	0	1	0	2	1	2	3	3	2
Venture Capital	0	0	0	1	2	3	1	1	1	0	1	0
Grand Total	165	278	431	762	1,103	1,297	1,427	1,627	1,924	2,214	2,616	2,717

SOURCE: ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, THOMSON FINANCIAL.

FIGURE 3
GLOBAL ETF AND ETP GROWTH



DATA AS OF END APRIL 2009

SOURCE: GLOBAL ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, BLOOMBERG.

As you can see in Figure 3, the first ETF was launched back in the US in 1993. If you look at that, you might think that ETFs have not been around long, but it is important to remember that the first indexed mutual fund was not launched in the US until 1976,

so it is not as if mutual funds have been around for hundreds of years either. The first products were launched in Europe only in 2000, but although a relatively new product, you can notice the growth. 1999 was a very important year, because that was the year firms like Barclays, State Street and Vanguard all launched families and, began to use ETFs as investment tools for their clients.

If we look today, we can see that those same firms, iShares, State Street and Vanguard are the largest managers (see Chart 3). Recently many have moved away due to concerns around counterparty inertia risk. Additionally, people have moved away from using certificates, swaps, and structured products. Many banks and brokers are entering the ETF business. If you examine the list, you can see many of those banks and brokers on it.

CHART 3

TOP 25 ETF PROVIDERS AROUND THE WORLD
RANKED BY ASSETS UNDER MANAGEMENT (AUM), AS OF END APRIL 2009

PROVIDER	Apr-09				YTD CHANGE				
	# ETFs	AUM (US\$ BN)	% TOTAL	# PLANNED	# ETFs	% ETFs	AUM (US\$ BN)	% AUM	% MARKET SHARE
iShares	361	\$336.17	47.6%	18	20	5.5%	\$11.32	3.5%	1.8%
State Street Global Advisors	104	\$110.14	15.6%	28	6	6.1%	-\$35.86	-24.6%	-5.0%
Vanguard	39	\$51.4	7.2%	4	1	2.6%	\$5.89	13.0%	0.9%
Lyxor Asset Management	116	\$33.34	4.7%	3	1	0.9%	\$0.11	0.3%	0.0%
dbxtrackers	106	\$25.32	3.6%	0	8	8.2%	\$1.26	5.2%	0.2%
PowerShares	143	\$24.19	3.4%	37	1	0.7%	\$1.91	8.6%	0.3%
ProShares	64	\$24.00	3.4%	106	0	0.0%	\$3.68	18.1%	0.5%
Nomura Asset Management	29	\$13.47	1.9%	0	0	0.0%	-\$1.47	-9.8%	-0.2%
Bank of New York	1	\$6.91	1.0%	0	0	0.0%	\$0.22	3.3%	0.0%
Van Eck Associates Corp	19	\$6.32	0.9%	13	3	18.8%	\$1.87	42.1%	0.3%
Nikko Asset Management	9	\$5.58	0.8%	0	1	12.5%	-\$0.61	-9.8%	-0.1%
Credit Suisse Asset Management	8	\$5.61	0.8%	0	0	0.0%	-\$0.34	-5.7%	0.0%
Daiwa Asset Management	23	\$5.12	0.7%	1	0	0.0%	-\$0.94	-15.5%	-0.1%
EasyETF	58	\$4.58	0.6%	8	4	7.4%	\$0.12	2.6%	0.0%
Zurich Cantonal Bank	4	\$4.38	0.6%	0	0	0.0%	\$1.08	32.7%	0.2%
Direxion Shares	20	\$3.83	0.5%	114	6	42.9%	\$2.89	309.1%	0.4%
Nacional Financiera	1	\$3.54	0.5%	0	0	0.0%	-\$0.10	-2.6%	0.0%
Hang Seng Investment Management	3	\$3.51	0.5%	0	0	0.0%	\$0.69	24.5%	0.1%
ETFlab Investment	24	\$3.47	0.5%	0	14	140.0%	\$0.95	37.6%	0.1%
WisdomTree Investments	50	\$3.15	0.4%	64	0	0.0%	-\$0.80	-2.4%	0.0%
Commerzbank	50	\$2.67	0.4%	0	0	0.0%	\$0.03	2.9%	0.0%
Credit Agricole Structured AM	36	\$2.49	0.4%	0	12	50.0%	\$0.63	33.9%	0.1%
UBS Global Asset Management	8	\$2.24	0.3%	0	0	0.0%	\$0.84	60.3%	0.1%
BBVA Asset Management	8	\$2.13	0.3%	0	0	0.0%	\$0.05	2.2%	0.0%
Claymore Securities	57	\$2.05	0.3%	10	3	5.6%	\$0.43	26.6%	0.1%

SOURCE: GLOBAL ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, BLOOMBERG.

Looking at how and why people use ETFs, the chart shows how the majority of assets sitting in ETFs today are sitting in equities, nevertheless we do see the increase in use of various fixed-income, money market and commodity exposure and alternatives (see Chart 4). The key driver for what makes an ETF useful is the benchmark. Clearly, when most people analyze using ETFs, they want exposure to something like the S&P 500³ or the FTSE⁴ or MSCI⁵, so the benchmark that ETFs are tied to, is one of the characteristics that investors use to decide which ETF is appropriate for their investments needs (see Chart 5).

CHART 4
GLOBAL ETF ASSETS BY TYPE OF EXPOSURE

Region of Exposure	Apr-09				YTD Change		
	# ETFs	Total Listings	AUM (US\$ BN)	% TOTAL	# ETFs	AUM Change	% AUM
North America - Equity	476	654	\$306.61	43.4%	4	-\$36.16	-10.5%
Fixed Income - All (ex-Cash)	183	339	\$111.29	15.7%	35	\$19.87	21.7%
Emerging Markets - Equity	246	499	\$90.14	12.8%	19	\$19.30	27.3%
Europe - Equity	366	793	\$76.00	10.8%	16	\$0.41	0.5%
Asia Pacific - Equity	141	235	\$49.18	7.0%	6	-\$2.92	-5.6%
Global (ex-US) - Equity	61	66	\$38.53	5.5%	1	-\$5.95	-13.4%
Commodities	49	107	\$12.96	1.8%	1	\$3.39	35.4%
Fixed Income - Cash (Money Market)	16	32	\$10.86	1.5%	3	-\$1.49	-12.1%
Global - Equity	98	242	\$10.69	1.5%	1	-\$0.21	-1.9%
Currency	13	13	\$0.31	0.0%	0	-\$0.08	-21.0%
Mixed (Equity & Fixed Income)	27	27	\$0.30	0.0%	1	\$0.02	6.5%
Alternative	2	2	\$0.01	0.0%	2	\$0.01	100.0%
Total	1,678	3,009	\$706.87	100.0%	89	-\$3.80	-0.5%

DATA AS OF END APRIL 2009

SOURCE: GLOBAL ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, BLOOMBERG.

3 Standard & Poor's 500 Index.

4 Financial Times Stock Exchange.

5 Morgan Stanley Capital Investment.

CHART 5
INDEX PROVIDERS WORLDWIDE
RANKED BY ETF AUM

Index Provider	Apr-09				YTD Change		
	# ETFs	Total Listings	AUM (US\$ BN)	%TOTAL	# ETFs	AUM (US\$ BN)	% AUM
S&P	217	329	\$ 173.86	24.6%	7	- \$ 29.23	-14.4%
MSCI	226	568	\$ 146.51	20.7%	24	\$ 9.89	7.2%
BarCap	58	127	\$ 61.47	8.7%	13	\$ 11.84	23.9%
Other	394	551	\$ 56.69	8.0%	-25	\$ 1.33	2.4%
Russell	55	88	\$ 50.47	7.1%	4	- \$ 7.16	-12.4%
Dow Jones	109	179	\$ 32.58	4.6%	1	- \$ 2.12	-6.1%
STOXX	171	424	\$ 32.26	4.6%	11	- \$ 1.07	-3.2%
FTSE	126	260	\$ 27.31	3.9%	5	\$ 2.93	12.0%
Markit	42	85	\$ 27.18	3.8%	1	\$ 6.59	32.0%
Deutsche Boerse	27	65	\$ 18.07	2.6%	-1	\$ 0.49	2.8%
NASDAQ	29	47	\$ 17.72	2.5%	1	\$ 0.86	5.1%
Nikkei	8	9	\$ 12.56	1.8%	1	- \$ 0.61	-4.6%
Topix	52	61	\$ 12.56	1.8%	0	- \$ 2.27	-15.3%
EuroMTS	14	41	\$ 11.03	1.6%	1	- \$ 0.01	-0.1%
Harg Serg	8	17	\$ 8.75	1.2%	-2	\$ 0.95	12.2%
CAC	14	19	\$ 6.47	0.9%	1	- \$ 0.29	-4.3%
NYSE	8	9	\$ 4.07	0.6%	4	\$ 1.28	45.7%
Wisdom Tree	43	43	\$ 2.95	0.4%	43	\$ 2.95	100.0%
Intellidex	45	55	\$ 2.48	0.4%	0	- \$ 0.04	-1.7%
Morningstar	13	13	\$ 1.28	0.2%	0	- \$ 0.07	-5.4%
Zacks	14	14	\$ 0.31	0.0%	0	\$ 0.01	3.4%
Value Line	5	5	\$ 0.28	0.0%	0	- \$ 0.03	-10.0%
Total	1,678	3,009	\$ 706.87	100.0%	89	-\$3.80	-0.5%

DATA AS OF END APRIL 2009

SOURCE: GLOBAL ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, BLOOMBERG.

ETFs IN EUROPE

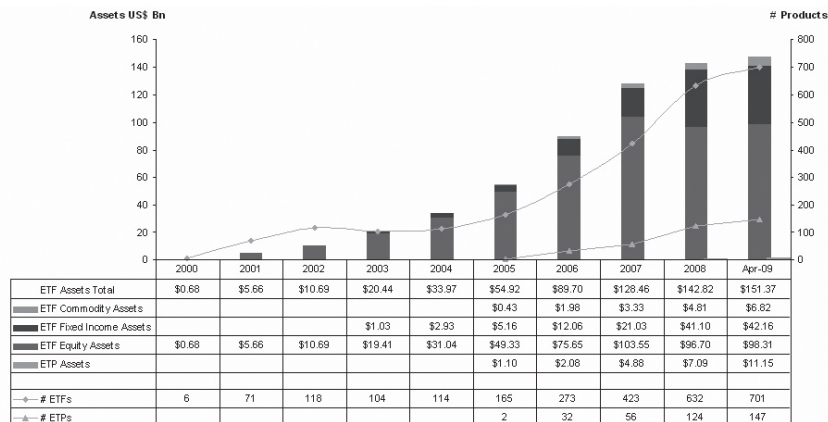
Europe is interesting because there is no large ETF used by retail; they tend to be used by institutional investors. ETFs are one of the few products where assets invested at the end of 2008 actually grew by 11% in relation to the previous year. Most products were down quite significantly last year, which is really important, if you consider most of the assets are sitting in equities, and MSCI World - as a benchmark - declined by more than 40%. S&P GSCI⁶ declined by even more, while a substantial amount of new money moved into ETFs. An indication of that is that many people moved away from

6 The S&P GSCI (formerly the Goldman Sachs Commodity Index) serves as a benchmark for investment in the commodity markets and as a measure of commodity performance over time. It is a tradable index that is readily available to market participants of the Chicago Mercantile Exchange. The index was originally developed by Goldman Sachs. In 2007, ownership transferred to Standard & Poors, who currently own and publish it.

using mutual funds last year. The money market fund in the US “broke the buck”, there was significant debate about active versus passive managers, and whether they can be benchmarks.

According to a S&P survey on benchmarks and active managers as of April 20, 2009, 71% of the active managers are not surpassing the S&P 500, international benchmarks, and similarly, not exceeding emerging markets. So, even though we have experienced a bear market, there have been challenges for active managers. Last year, there were 18 trading days when the S&P moved, in one day, by more than 5%. When investing in a mutual fund, the actual price for buying or selling is only available at the end of the day. Using an ETF, you can opt to get in or out at any time during the day. These factors led investors to show net sales of mutual funds in Europe of mutual funds were at US\$495 billion last year. Net sales of ETFs in Europe last year were US\$76 billion, so there are a lot of trades pushing towards the use of ETFs.

FIGURE 4
EUROPEAN ETF AND ETP GROWTH



DATA AS OF END APRIL 2009

SOURCE: ETF RESEARCH & IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS, BLOOMBERG.

Another question that needs to be addressed is the cost of using ETFs relative to mutual funds. In Chart 6, we have considered all of the different types of ETFs and, on average; the total annual expense ratio (TER) for ETFs is 31 basis points. If you compare that to indexed mutual funds, you would note that for equity, the basic points are either 87 or 84, and 47 for fixed income. Consequently ETFs are typically less than half the cost of a mutual funds, and, for those who are able to do securities lending, ETFs shares can be loaned earning securities lending revenue, which can offset some if not all, of that total expense ratio.

CHART 6
EXPENSES OF ETFs VS OPEN-END MUTUAL FUNDS IN EUROPE

Average TER(s)	Average TER (bps)
Exchange Traded Funds*	
Alternative	65
Commodities	45
Country Exposure Europe - Equity	28
Country Exposure United States - Equity	38
Currency	19
European Sector Exposure - Equity	37
Eurozone Sector Exposure - Equity	43
Fixed Income	16
Global Exposure - Equity	49
International / Emerging Markets - Equity	63
Inverse	41
Leveraged	55
Leveraged Inverse	61
Mixed (Equity & Fixed Income)	72
Regional Exposure Europe - Equity	35
Regional Exposure Eurozone - Equity	23
Style - Equity	37
US Sector Exposure - Equity	72
Total - Equity ETFs	37
Total - Fixed Income ETFs	16
Total - All	31
Open-end Mutual Funds**	
Actively Managed Domestic Equity	175
Actively Managed International Equity	173
Actively Managed Fixed Income	101
Passive/Indexd Domestic Equity	87
Passive/Indexd International Equity	84
Passive/Indexd Fixed Income	47

*AS AT END FEBRUARY 2009. **CAPTURED FROM MORNINGSTAR ON 20 MARCH 2009.
SOURCE: MORNINGSTAR, ETF RESEARCH AND IMPLEMENTATION STRATEGY TEAM, BARCLAYS GLOBAL INVESTORS.

HOW ARE ETFs USED?

In the early days, many investors would use ETFs as a trading product, so it was really an alternative to using futures. Today, because fees have decreased investors are using ETFs as strategic holdings, and as we analyze this a kind of core satellite will be shown. The other reason for using EFTs is tactical, accessing exposure to thematic ideas, or moving exposure to markets where you might have foreign investor limits or restrictions, efficiently. With ETFs you do not need to apply to the government in order to invest in markets like Korea, Taiwan, and India, for example. You can buy an ETF that has that status and acquire that exposure with ease.

Clients told me over the years that they like ETFs because, right now, we are in an environment that is back to basics. People want simple products that do what they say they are going to do. ETFs are transparent, that is you can see what they encompass every day: one can search on websites, on Bloomberg. The fact that they do have this liquidity, either secondary like stocks, or being able to trade the underlying, mean instant diversification to very broad benchmarks in a cost-efficient fashion. The fact that you have the flexibility of so many different types of benchmarks being covered; the fact that they are cost-efficient, and that you can lend them. These are all the key factors why people are embracing the use of ETFs, including the knowledge that they are in your closet, and that you can pull them out when and if needed.

Some may say that they are very happy, most of their investments are in local bonds, some local equities, but if they want to invest in the US, in Japan, certain sector themes will use ETFs as satellites. For others, the ETFs can be a core holding or it can be both core and satellite. An area where they have become more popular, but has issues regarding benchmarks, is that there is not a lot of consistency when you look at fixed-income benchmarks. Equity indices have basically moved in line; there is free float adjustment, looking at market caps, and other issues; the methodology when you look at fixed-income,: do the prices come from one bank of or a broker? Is it a consortium? Are they intra-day? End of day? Are they capturing the mids or bids? But you do see growth, and the use of these products is growing quite significantly.

The last area where we are seeing a lot of interest in investing would be commodities, but that is also driving into the new area Under the UCITS⁷ guidelines, which are the mutual fund guidelines for Europe, you can observe ETFs and funds on diversified benchmarks, S&P GSCI or the Dow Jones – UBS Commodity Index. As you move on to the sub indices and individual commodities, this is where we have seen the evolution of what people are calling Exchange-Traded Notes (ETNs), Exchange-Traded Commodities, or lumping them together as Exchange-Traded Products. The important

7 *Undertakings for Collective Investment in Transferable Securities.*

thing to realize is that under UCITS, there are many ways to invest in funds and ETFs, so if you look at the products, many banks and brokers, as opposed to asset managers, delve into the ETF business. Many of them - instead of buying underlying securities - are using swaps, which is allowed and cannot be more than 10% of the net asset value of the fund. The swap delivers the performance, and the remaining basket of securities does not have anything to do with the benchmark. Therefore, you can buy a product like the DAX ETF from one of the banks that provides these products, and it will be a swap for less than 10% of the portfolio, and the rest is a basket of Japanese equities.

It is important to make sure that you understand how the product is structured. As you move to these exchange-traded notes or commodities, which are, basically, debt from the issuer (either secured or unsecured) you have a 100% counterparty exposure. When you look at funds, you realize that if you are holding a fund portfolio, you can invest up to 20% in another fund. If you are holding notes or certificates, you can only invest 10% because there are counterparty issues.

CONCLUDING REMARKS

The global ETF industry has grown from zero to a multi-billion sector in 16 years, and despite the current market there are no signs that investor interest in ETFs is fading. We believe the future will remain positive for ETFs as they continue to be one of the preferred investment vehicles for low cost beta exposure.

Several factors driving this growth include:

- Growth in the number of institutional and retail investors who use ETFs and view them as useful tools.
- Regulatory changes in the US and Europe and many emerging markets that allow funds to invest larger allocations in ETFs.
- The number and types of equity, fixed income, commodity and other indices covered.
- Development and growth of investment styles which employ products like ETFs that deliver low cost beta.
- The growing number of exchanges, which plan to launch new ETF trading segments.
- The expectation that there will be a number of new issuers/managers of ETFs.



PART II

DECUMULATION STAGE

-
- CHAPTER V. OPTIMAL PENSION MODES IN A MANDATORY PENSION SYSTEM
 - CHAPTER VI. ANNUITIES AND PROGRAMMED WITHDRAWALS
 - CHAPTER VII. THE MARKET FOR PENSIONS



CHAPTER V

OPTIMAL PENSION MODES IN A MANDATORY PENSION SYSTEM

WOJCIECH OTTO. Optimal pension modes in a mandatory pension system

OPTIMAL PENSION MODES IN A MANDATORY PENSION SYSTEM

WOJCIECH OTTO ¹

- ¹ *Wojciech Otto is a Professor at Warsaw University. His general field is Economics, however, he specializes in Econometrics. He is Director of the Warsaw Actuarial Summer School, Director of the Post-Diploma courses in Insurance and Deputy Dean of the Faculty of Economics of Warsaw University. He was also Chairman and is Deputy Chairman right now of the Polish Examination Board for Actuaries. He also advises the Financial Supervisory Commission and Ministry of Labour and Social Policy in the area of pension reform, especially in the payout stage.*

I. MAJOR REFORMS IN CENTRAL AND EASTERN EUROPEAN COUNTRIES

Major reforms in Central and Eastern European (CEE) countries have taken place during the last ten years. The first one was Hungary in 1998, a bit later in Poland in 1999, then Latvia in 2001; in 2002 three countries: Estonia, Croatia and Bulgaria. Subsequently Slovakia (2005) and Romania (2008) have introduced quite similar systems in which the mandatory part consists of two pillars. Pillar I in Poland and Latvia is a Notional Defined Contributions (NDC) system. In most other countries solutions for Pillar I are similar, with some departures from classical NDC rules. Pillar II is Fully Funded Defined Contributions (FFDC). The proportion of the contributions going to the two mandatory pillars differs from country to country ranging from one quarter to one half directed to the second pillar. Also, in some countries, it changes; a smaller contribution to the second pillar in the first years and a growing share of contributions later on. Also important is the fact that in most countries there are caps, so contributions for both pillars are limited. In Poland, the contribution base is capped at 250% of the average salary. This means that a person that earns, say 500% of the average salary, stops contributing around June or July each year. In other countries there are similar caps, the highest, I think, is 400%.

The fact that reforms have usually involved the pension system while orphans' and widows' pensions as well as disability benefits usually remain unchanged is important. These are financed in the traditional pay-as-you-go basis and by separate contributions.

There was also a typical transition period to the new system. In Poland, the transition to the new system was mandated for young workers who were under 30 years old until 1999. Workers over 50 years old were mandated to stay in the old system. Workers between 30 and 50 years old had the choice of entering the new system with contributions split between Pillars I or II, or enter the new Pillar I with a one hundred percent contribution.

The treatment of acquired pension rights has been different in various countries. We believe the Polish solution was quite fair. The rights acquired prior to the reform had

been converted into an initial balance of the individual account in Pillar I, and the individual account in Pillar II started at the inception of the reform from zero. This was not the case in Hungary, where the system of individual accounts in Pillar I has not been launched. Thus Pillar I benefits are to be calculated on the basis of a formula, basically the same as the one used prior to the reform. However, the formula will be corrected down by 25% for those who enter Pillar II. This is a more or less fair solution for those who were relatively young in 1998, but unfair for those with relatively large accrued pension rights at that time. The public was not informed clearly enough about these consequences, and this caused some political problems later.

II. THE CURRENT PHASE

In most CEE countries the payout phase has not yet started. There are some exceptions. In some countries, a third pillar has started before the second pillar. In these countries, some pensioners have already entered the payout phase, but in the voluntary third pillar (and at the same time in the old mandatory system). In the second pillar, basically, almost no country has reached the retirement age. However, most countries have generally declared that the payout mode will be based just on mandatory annuitization. Also, in most countries a final solution has already been designed for the Pillar I, but has not been designed for Pillar II yet.

Two countries where some solutions have to be designed soon are Poland and Hungary. In both cases, the problem has been passed on to the future. In Hungary, at the moment, lump sums are allowed and the final solution, which has not been designed yet, is envisaged for members with at least 15 years of participation. This means that final solutions will have to be prepared prior to 2013. In Poland there is a similar situation. What has already started are temporary phased withdrawals for retirees under 65 years old. In practice it concerns only women who retire in the period 2009-2013. Of course, in 2009 there are only around 2,500 of them and a small accumulated amount per capita. The number of retiring persons as well as the average amount accumulated will grow very rapidly in the next years. In 2014, there will be already 65-year-olds of both genders seeking the final pension products.

III. PAYOUT MODE FROM PILLAR I

Basically, the payouts will have the form of annuity indexed by inflation rate plus a fraction - which I think is of 20% in Poland and Hungary - of real average wage rate. Sometimes, it is called the "Swiss indexation" in the literature. The radical version of the initial benefit formula, which has been applied in Poland and Latvia, is that the initial level of the benefits is the balance of the individual account in Pillar I, subdivided by the expected remaining lifetime in months. Calculations are to be based on the last available national life table, which of course neglects the expected longevity improvements of

the cohort of retiring members. This is quite a radical solution as it links benefits to contributions very tightly. The solidarity is reduced to two things: the Minimum Pension Guarantee, and the widows' pensions. Both mean in fact budget-financed top-up benefits for those whose benefits from both pillars are too small in absolute terms or in relation to benefits of the deceased spouse.

In countries like Poland where the treatment of pension rights accrued prior to the reform and proportions of contributions directed to pillar I and II, we can expect that the first individuals retiring under the new mandatory system will obtain about 90% of their pension from pillar I and about 10% from pillar II. The proportion will gradually change to reach at maturity (about 30 years from now) in roughly equal parts of pension from both pillars.

IV. PAYOUTS FROM PILLAR II

Now, what are the priorities for Pillar II? This is a controversial matter, and there is surely no unique answer for all countries in the world. However, my personal opinion is that for CEE countries the natural priority is the longevity risk protection. We can expect that the replacement rate aggregated from Pillar I and II will not be higher than under the old system in all these countries. Therefore, both new pillars should be treated as replacing the old system. The legacy of the old system is expectations of people that the new system will ensure similar benefits. An important argument is also raised often by macroeconomists. They argue that when pensions from the mandatory system are unnecessarily generous, the proper response is to reduce contributions, as opposed to allowing other uses of the accumulated savings beyond longevity protection. This is because mandatory pension systems are costly, especially when high contribution rate increases the cost of labor.

Of course, having made sure that average lifelong pensions are adequate, we will always have those who have too small pensions and those who have excessively large pensions. Hence there is always the question of whether we should mandate high earners to annuitize all their savings accumulated under the mandatory system, even when the system does not impose too high contributions on average. A partial answer is that we have caps on contributions that prevent to having extremely high savings at retirement. Of course, in the case of countries where the cap is set at a higher level, let's say at 400%, this argument becomes weaker.

There are other preferences that compete with longevity risk protection such as bequests, unforeseen excessive medical expenses/long-term care, and protection against other contingencies. Under mandatory annuitisation of savings accumulated in both mandatory pillars, these preferences may be still met by voluntary Pillar III and by general voluntary savings. Hence the mandatory annuitisation in Pillar I and II

means that we should allow for full flexibility of payouts from Pillar III. Accumulating savings under pillar III is open to everybody; however the cap of 250% on mandatory contributions addresses the invitation to participate in Pillar III especially for high earners, whose excessive income appears in the second semester of the year when, they stop contributing to the mandatory pillars.

V. DEFICIENCIES OF MANDATORY ANNUITIZATION - DEMAND AND SUPPLY SIDE

There is a lot of literature critiquing mandatory annuitisation and pointing out the deficiencies of this solution. There are several arguments raised. Some of them come from the analysis of the demand side. These arguments mainly say that mandating annuitization neglects the natural diversity of individual preferences, due to objective and subjective factors. Objective factors are wealth, which is already annuitized, other financial wealth, and tangible and intangible net assets that we may have at retirement. Then, more subjective factors are individual expected lifetime, if it is different from the average used for rating by providers of annuities, and also the individual risk attitudes and time preferences.

However, the counter-arguments come from findings of behavioral economics. The main message is that the rationality of individuals is limited, especially when they face uncertainty, complexity, and long-term effects of decisions to be undertaken. All these three phenomena are present in the case of retirement decisions. The above findings of behavioral economics come from empirical researches made mainly in rich countries. An additional factor is the lower financial literacy more common in CEE countries than in western countries. Moreover, another counter-argument is that of the free choice costs due to adverse selection, which I will discuss later on.

There are other deficiencies of mandatory annuitisation which come from the supply side. Firstly, it is often quoted that in annuity business there are returns to scale, and so a tendency towards concentration of the market may make fair competition between providers difficult. This may be a serious problem especially for small countries, for which probably a single state-owned provider would be preferable. This is not the case of Poland, but may be of the Baltic countries. The second argument is that fixed annuities are of poor value compared to lump sum or phased withdrawals, due to the high – even if fair – price of full guarantees regarding investment and longevity risk. Another problem stems from the fact that the annuity contract is basically irrevocable, so that once the contract has been concluded, the individual has no way of deriving benefits from a better performance from the competitors of the actual provider. For this reason the competition between providers is focused on the acquisition of new business at the cost of neglecting the interests of those who continue receiving benefits.

Also, annuitisation entails a timing risk: the risk of a bad choice of the annuitization date. This risk is usually illustrated by an annuity provider who hedges the risk of the portfolio of annuities by investing in risk-less bonds, with durations that fit the time path of expected payouts. If the portfolio of savings of a retiring person contains a large portion of equities or short-term bonds, then there is a risk of bad exchange rates from one portfolio to another. The risk is basically due to a different asset mix prior and after the conversion of pension savings into annuity. The proper response to this risk is to gradually adapt the structure of assets during a period of time prior to retirement. Naturally, this means gradual replacement of investments in equities, by investments in bonds, only in the case when savings are to be converted into annuity fixed in nominal terms. The target structure of the portfolio just prior to retirement could be quite different if savings are to be converted into other type of annuity (variable, with-profit etc.).

VI. ARE ANNUITIES REALLY INEFFICIENT?

The microeconomic inefficiency of annuities is often attributed in the literature to one of three phenomena. First, the adverse selection and related asymmetry of information. However, most arguments refer to voluntary annuity markets and do not apply to the mandatory case. Secondly, annuities are criticized because investment and inflation guarantees are expensive. However, this concerns annuities fixed in nominal terms or indexed by the inflation rate. Finally, expensive longevity guarantees are also criticized due to the great risk stemming from the limited predictability of the process of longevity improvements.

There are also some macroeconomic malfunctions. Providers' attempts to hedge investment and longevity risks may lead to investment dominated by public debt; this is especially the case when annuities are inflation-indexed and the only issuer of inflation-indexed securities is the government. These attempts can also lead to pressure on governments to issue longevity bonds or similar instruments. Both solutions would be very convenient for private providers, but contrary to the major goals of the pension reforms. These major goals (more or less the same in all countries of the region) are to reduce pension obligations and remove the embedded risk from the government, to promote the growth of the economy, and to prevent wasting the returns from the privatization of state enterprises.

VII. COMPARING EFFICIENCY

In the literature dedicated to this topic, we sometimes encounter comparisons of the efficiency that, in my opinion, are not always fair. This is because what is usually compared is the withdrawal scheme from an equity fund, which provides no guarantees with the life annuity indexed by the consumer price index which, on the contrary, provides full inflation and longevity guarantees. The second option appears to be superior only for

people who show extremely low risk tolerance or people at a very advanced age.

Often, the conclusions that are drawn from these comparisons are that annuitisation should be deferred until old age, such as 75 or 80, and that a large portion of savings should be used to cover withdrawals prior to that age. However, we may consider two other options as well. Firstly, a lifelong annuity that pays a fixed number of units of an equity fund, a classic product that provides full longevity guarantee and no investment guarantee. Secondly, a withdrawal scheme from a fund investing in inflation-indexed bonds, where we get full inflation and investment guarantees, but no longevity guarantees. We have four possible solutions and we can compare them honestly and fairly. In this case, an annuitisation earlier than at 75 or 80 makes sense provided the annuity is neither fixed in nominal terms nor inflation-indexed.

VIII. GUARANTEES AND DIVERSIFICATION

The question rises. Why are guarantees so expensive? In fact they can be split into a cheap and an expensive part. In competitive markets, risks which are diversifiable are usually covered almost for free. The diversification effect comes from a pooling of assets or a pooling of liabilities. Pooling assets diversifies the risk of investment in individual securities or ventures. Pooling lifelong benefits' liabilities diversifies the risk of unknown lifetime of an individual person. The high price of guarantees does not come from these components of risk, and they should be covered free of charges. The high price of guarantees comes from the non-diversifiable part of these risks. On the investment side it is the market risk, interest rate risk and inflation risk. On the longevity side there is the risk due to errors made attempting to project life tables that reflect the true lifetime probability distribution of a retiring cohort.

Transfer of the non-diversifiable risk does not remove the risk premium, unless two parties are exposed to opposite risks. Therefore we can usually transfer this risk, but it entails somebody else assuming the risk premium. There is a theoretical possibility to hedge the risk that stems from unpredictable longevity improvements. This is when a portfolio of life annuities is hedged by a portfolio of life insurance contracts. Faster than expected longevity improvements lead to losses on annuities and profits on life insurances. However, in order to offset losses by profits we also need a proper balance of the two portfolios. Rough estimates made for the case of Poland have shown that the aggregate exposure of the market for Pillar II annuities to the risk of unexpected acceleration (slow down) of longevity improvements would be many times larger than the exposure to the opposite risk of the life insurance market. This means that the corresponding risk premium in life insurance contracts might disappear, whereas for the same period the risk premium embodied in annuity prices may be reduced only marginally.

IX. EFFICIENT SOLUTIONS

1. Profit sharing

The efficient solutions are, of course, those where the whole diversifiable risks are removed from a pensioner, just because this could be done at a low cost. On the other hand, we can also remove some part of the non-diversifiable risk, although removing too much will substantially increase cost, as in the extreme case of annuities linked to the inflation rate.

The efficient solution should be based on profit sharing between the provider and the pool of annuitants (annuity fund), where the profit and risk to be shared come from the combined effects of investment performance and survival gain. An advantage comes from the fact that investment risk and longevity risk are weakly correlated, if correlated at all. Of course, a drawback is that solutions are more complex and so might be less transparent than phased withdrawals or fixed annuities.

The general scheme assumes that the surplus (excess of assets over reserves) made during a year by the annuity fund is shared between the provider and annuitants. The annuitants' share is converted into additional amount of life annuity. In other words, annuities are indexed by such a rate that the corresponding recalculation of reserves of the fund makes them equal again to the amount of funds' assets. Particular solutions can be derived from the general scheme by establishing the proportions of annuitants' and providers' share in the surplus, as well as setting several other details of the profit-sharing mechanism. For example 100% of the providers' share corresponds to a classical annuity. Another extreme case is 0% providers' share, the solution known as TIAA-CREF² annuity, offered to college teachers in the US. In my opinion more moderate proportions are desirable.

What are the arguments for and against profit sharing? The main advantage is that profit sharing makes the provider follow the fortune of the annuitants. In order to achieve that, the provider's share should not be too small, as then incentives for efficient investments are removed. On the other hand, a large provider's share automatically reduces the annuitant's benefits, and requires larger solvency capital, which, of course, means also a larger risk premium.

The main disadvantage of risk sharing is that the actuarial parameters used for reserving cannot be discretionary, so there is a need for transparent rules and sound supervision. This is because a voluntary manipulation allows for redistribution between the provider and the pool of annuitants, and also between subgroups of annuitants within

2 Teachers Insurance and Annuity Association, College Retirement Equities Fund.

the pool. An additional disadvantage is the complex nature of the solutions. Even when transparent for professionals, they might be difficult to understand by members.

There are several variants of profit-sharing solutions that make them more attractive. For example, worth considering is the case of asymmetric shares, for instance 10% providers' share in surplus when positive, and 100% share when negative. This means issuing a guarantee that the annuity will never decrease, with the chance for increases each year. This sharing rule, supplemented by several additional items in the profit sharing mechanism that make the asymmetry less risky for the provider, is now under consideration in Poland. Another interesting case is when a provider manages more than one fund. This allows members to switch between funds of different risk profiles. The solution enables designing a path of gradual switching from risky to risk-free investments, mitigating in this way the timing risk and, what is even more important, allowing for allocating the above switching process within the post-annuitisation phase, instead of doing it as early as in the pre-annuitisation period.

2. Mitigating adverse selection

Annuity providers always face the problem of adverse selection. The particular case of Pillar II annuities in CEE countries comes from the fact that this is a part of the mandatory pension system. On the one hand, it facilitates the problem, as annuitisation would be mandated in most of these countries. On the other hand, the problem is greater as differentiating annuity conversion rates by risk factors other than age are treated as discrimination and, in most countries, would probably be prohibited. The unique conversion rate follows the rule applied in Pillar I, where of course it does not cause problems. The problem for Pillar II is how to avoid adverse selection and costly acquisition targeted at "good risks", which would arise as a member chooses between competing private life annuity providers.

What are the possible responses? One solution could be centralised distribution. The second response is no free choice between products, at least between products which differ according to the degree of protection against longevity risk. This means in particular that there should be neither the choice between level and escalating annuities, nor between inflation-indexed annuities and annuities fixed in nominal terms. Another response may be based on special arrangements designed to reduce the provider's incentives to seek for easy profits made on "good risks". Two such arrangements have been designed to mitigate the problem in Poland. The first one concerns the incentive to seek easy profits by attracting as many males and as few females as possible. The other one concerns incentives to attract people with poor medical prognosis.

3. Removing gender disparity risk

The gender equalization problem has almost caused a switch to the solution based on one state annuity provider in Poland. Arguments have been made that the private market will not stand the imposition of equal annuity rates for males and females. This happened around seven years ago, when the left-wing party was ruling in Poland. Only a new election allowed considering market-based solutions once again. Later on supporters of market solutions worked out a system of clearing the effects of differences in the gender structure in the portfolios of many providers. The clearing system periodically redistributes assets from providers that have written more new contracts with males, towards those who have written more contracts with females, making all of them indifferent in respect of gender of members choosing their offer at retirement.

4. Poor health at retirement

Another problem we think is important is poor health at retirement. On the side of members, this is an issue of social fairness, because accumulated savings are inheritable just before annuitisation, but they are forfeited in case of death the next day. The challenge for the mechanism designer is how to mitigate incentives to undesirable behaviours of agents. The solution proposed in Poland is to supplement the annuity by the life insurance, where the sum assured is equal to a premium paid just after the inception of the annuity contract, and rapidly decreases linearly to zero within 3 or 4 years. This is because we think that the predictive power of bad information about health works for a few years and then disappears. The solution works better when mandatory, because then the incentives for undesirable behaviour disappear on the side of a retiring person as well as on the side of a provider.

X. FINAL REMARKS

Payout phase problems are quite complex and designing efficient solutions for the new Pillar II is still ahead of most countries, including Poland and Hungary. Temporary solutions applied in Poland and Hungary have provided us with a few more years to work out final solutions. However, a few years is relatively short as the task is fairly complex. We will most probably be unable to avoid learning by trial and error, but the international exchange of opinions and experience can make this process a bit quicker and maybe a bit less costly.



CHAPTER VI

ANNUITIES AND PROGRAMMED WITHDRAWALS

TOM KLIPHUIS. Annuities & Regulation: a business point of view

AUGUSTO IGLESIAS. Programmed Withdrawals

DIMITRI VITTAS. Annuity Markets: The challenge of inflation

ANNUITIES & REGULATION: A BUSINESS POINT OF VIEW

TOM KLIPHUIS ¹

- 1 Tom Kliphuis has a Master's degree in Business Economics at the University in Groningen, the Netherlands. Currently, he is Chief Executive Officer (CEO) of ING Insurance Central Europe (since January 2006). From 1990 – 1992 he worked as country manager, ING International Division. He then transferred to the life company of Nationale-Nederlanden in Rotterdam where his focus was on back-office management and business process redesign. He became Head of Marketing Individual Life in 1995. At the end of 1997, Tom Kliphuis became Regional Manager ING-FSI Europe & South America. In 2000, he was appointed General Manager ING Afore in Mexico and three years later he became CEO of ING Chile.

This brief article presents my view as an entrepreneur on the pension fund business and annuities, as well as my views on their regulations.

INTRODUCTORY REMARKS

Since pensions are about long-term savings and trust is absolutely crucial, we believe optimal regulation is necessary in the pensions systems, and that strong supervision helps build trust.

Regulations must create a level playing field. For example, we can analyze the current changes being reviewed under Polish regulations - where the assets under management fees are currently being capped.

- This means that two years from now we should reach the maximum asset levels, therefore assets under management fees would never be able to increase in the future, while at the same time, our related costs will go up with inflation. A small pension fund would not have that restriction. In view of that, we feel that we would not be on a level playing field if that regulation is approved and implemented as it is presented today.
- Even more important, capped fees are not good for customers, as big pension funds have no incentives, or insufficient incentives, to increase assets for their customers.

A key issue to consider is that regulation should allow for sufficient assets in international stocks and bonds. Too many of our investments are restricted to just local bonds and local equity. This can also create unwanted effects. If all the pension funds are forced to invest mostly in local equities, these are impacted by local inflation, which I believe is not a healthy situation. Diversification of assets helps build more solid returns for customers.

Another important factor is that yield guarantees that are imposed by regulation should

be eliminated. Over the last years, there have been several attempts to have guarantees to match inflation. Of course, from a political stand-point this sounds great, but with the implementation of such a guarantee, it would be almost impossible for a pension provider to have a healthy business. It would force pension providers to become extremely conservative in their investment strategy. At the end of the day, customers would indeed get their inflation guarantee, but not much more.

REGULATION SHOULD ALLOW FOR FLEXIBILITY IN SOLUTIONS

What should regulation actually allow for flexibility? We believe that that in the wealth-accumulation phase people must be allowed to make voluntary contributions to a mandatory system, with some tax advantages. This will support the construction of a sustainable, thriving and effective business.

In the payout phase, regulation should allow for flexible timing, since annuities depend heavily on interest rates at any given moment. Also, regulation must try to find solutions that fit with individual situations. This is based on one or two lives with a fixed annuity or programmed withdrawals, but we do not favor lump sum payments.

SOME RECOMMENDATIONS

In the pension fund business, from both a customer as well as an employer's point of view, tax incentives are critical. If we want people to really contribute - and continue to contribute - to pension funds, strong tax advantages are very important.

It is also crucial to limit, to a certain extent, commissions for agents and brokers. In the early 90s, the Chilean annuity business was basically a broker-run business, and the annuity business charged commissions of up to 10% sometimes. Now it is regulated and down to 2% maximum commission fee, a healthier situation.

Further, regulators should make the business sufficiently attractive for providers to make a profit. In Slovakia, the government recently reduced fees to such an extent that it is extremely difficult (if not impossible) to continue in business as a solid pension provider. This is bad for customers, because if there is no incentive for the industry to place the best people on those pension funds in order to obtain the best return, at the end of the day the customer will lose.

Regular operational audits or ratings of pension providers are a good thing to implement. As we are in a long-term business, based on trust, and managing large amounts of money for customers, I think it is good that not only price or return, but also the transparency and operational efficiency, or the operational soundness of companies play a part in this game.

Regulation should be absolutely independent of day-to-day politics. The system needs stability, not volatility or political opportunism, and if changes are made continuously, customers will lose trust. Constant attempts to change the pension fund legislation will, at the end of the day, convince the pensioner that it is not for him them, but just for the state.

Regulation is necessary, but it can also go to extremes. In Chile, for instance, there is an excessive amount of regulation, which is fairly costly, because providers have to maintain awareness and to implement all those changes. In the Netherlands, we have had a fundamental change almost every 5 years, mostly politically-driven. What politicians seem to forget is that changes have a tremendous impact on cost and the operational systems.

PROGRAMMED WITHDRAWALS

AUGUSTO IGLESIAS ¹

- ¹ *Augusto Iglesias Palau is an Economist from the Catholic University of Chile, with a Master of Arts in Economy at the University of California, Los Angeles, United States. Expert in the pension area and in market regulation issues (anti-trust legislation), he is currently senior partner in PrimAmerica Consultores S.A. He has worked as a consultant on projects related to pension reform for international agencies, including the World Bank, the Inter-American Development Bank (IADB), the Economic Commission for Latin America and the Caribbean (ECLAC) and the United Nations, as well as governments and private institutions.*

Although some funded pension systems offer their members the alternative of withdrawing the accumulated savings as a lump sum on retirement, in our opinion a mandate to transform the stock of pension savings into a flow of future pensions should exist in most cases. The exceptions are those cases in which there are other (relevant) sources of retirement income, and when the “transformation costs” of pension’s savings into a flow of pensions are too high (compared with the level of the pension to be financed). Moreover, in our opinion having programmed withdrawals (PWs) as a pension alternative in a mandatory funded pension program makes sense in most real world situations.

First we will briefly describe PWs and life annuities, the two basic pension modes which are offered in most of the new funded mandatory pension programs. This will be followed by more specific details on PWs and some policy conclusions.

PENSION MODES

PWs and life annuities are the benchmarks in discussions about pension modes in funded mandatory pension programs. With PWs pensioners will receive monthly payments which are financed from the funds accumulated in their respective personal pension accounts. These payments can be fixed or variable and will be made until the funds are depleted. Life annuities are contracts sold by insurance companies designed to provide lifetime payments (of fixed or variable amounts) to the holder (and, eventually, to his/her beneficiaries) at specified and regular intervals.

The risk exposure of pensioners depends on the pension mode they receive (see Table 1).

Longevity risk is the risk of outliving the funds accumulated in the personal pension account. As we will see, while (most) PWs expose pensioners to the longevity risk, with an annuity this risk is assumed by the insurance company selling the respective contract.

Investment risk is the risk of changes in the amount of the pension depending on the changes in the actual investment returns of accumulated savings or reserves. Pensioners receiving a PW face investment risk. While fixed annuities protect the pensioner from investment risk, since the life insurance company should pay the promised pension whatever the return on the investment of its reserves, variable annuities don't, because in this case the amount of the pension will depend on the respective portfolio returns.

Inflation risk is the risk of a reduced purchasing power of the pension when inflation rates are positive and the pension is not inflation-indexed. Usually, pensioners receiving PWs face inflation risk (because at least part of the financial assets in which the pension savings are invested will not be indexed). While fixed real annuities protect the pensioner from inflation risk, fixed nominal annuities and variable annuities don't.

Finally, *solvency risk* is the risk of a pension provider going bankrupt and unable to pay the pension. Pensioners receiving a PW keep ownership rights over the accumulated pension savings; so they don't face solvency risks. On the other hand, annuitants do face this risk since the respective life insurance company could default on its promises.

TABLE 1
PENSION MODES AND PENSIONER'S RISKS

	Longevity	Investment	Inflation	Solvency
<i>Programmed Withdrawal</i>	Yes	Yes	Yes	No
<i>Annuity</i>				
Fixed				
Real	No	No	No	Yes
Nominal	No	No	Yes	Yes
Variable	No	Yes	Yes	Yes

SOURCE: PRIMAMERICA AND "PENSION MODES IN FUNDED PENSION SYSTEMS", FIAP APRIL, 2008.

Therefore, there is not an "intrinsic" difference between PWs and life annuities in the way in which they allocate investment and inflation risks between pensioners and providers of the respective pensions. The main differences between these pension modes are the manner in which they allocate longevity and solvency risks: pensioners receiving a PW will face longevity risk; pensioners receiving an annuity will face solvency risk.

There are other differences between PWs and annuities. First, with PWs pensioners keep property rights over their pension savings, so the balance of funds not used to finance pensions become part of the respective individual's bequest. Second, PWs pensioners can switch to an annuity; on the other hand, once an annuity has been bought, the decision becomes irrevocable. Third, firms offering PWs do not need to be insurance

companies, but annuities providers must be restricted to this kind of companies. Finally, depending on regulations, PWs offer pensioners the possibility of selecting the investment portfolio, but fixed annuities don't.

Table 2 shows that all the countries that have introduced mandatory funded pension programs do offer their pensioners the alternative of buying a life annuity at retirement (which in most case are fixed annuities). Some countries also offer the alternative of a programmed withdrawal and in a few cases combinations of these two kinds of pensions are allowed. Also, lump sums are allowed in some cases but only once the individual has bought a pension over a threshold (defined by regulations).

An unexplained issue as yet, is why all Latin American reformist countries where most of the retirement income comes from the funded pension, and specifically from individual capitalization accounts, have introduced or authorized PWs as an alternative to life annuities; while Eastern and Central European countries, where the funded pensions complements a defined benefit pension coming from traditional pension programs, only authorize life annuities.

TABLE 2
PERMITTED PENSION MODES BY COUNTRY

Country	Life annuity (LA)	Scheduled withdrawal (SW)	Combined LA and SW or deferred	Lump sum above minimum	Variable annuity
Argentina					
Bolivia					
Colombia					
Chile					
Costa Rica					
Dominican Rep.					
El Salvador					
Mexico					
Peru					
Uruguay					
Bulgaria					
Croatia					
Estonia					
Hungary					
Latvia					
Macedonia					
Poland					
Kazakhstan					

SOURCE: K.S. HEBBEL (2008).

No definite conclusions can be drawn from the experience of countries where retirees

can choose among different pension modes regarding the determinants of individual's pension decision (see Table 3). As we will discuss later, individual decisions at retirement seem to be mainly shaped by the specific characteristics of regulations governing in each country, so this factor could be the main explanation for the observed differences in the way in which the pension market is organized.

TABLE 3
PENSION MODES: MARKET PARTICIPATION
(% OF TOTAL PENSIONS PAID)

	PW	Annuity	PW + Deferred annuity
Argentina	66.7%	33.3%	
Bolivia		100.0%	
Chile	39.9%	58.8%	1.3%
Colombia	51.9%	48.1%	
El Salvador	100.0%		
Peru	10.6%	47.5%	41.9%

SOURCE: PRIMAMERICA CONSULTORES.

PROGRAMMED WITHDRAWALS

PWs can be designed in many different ways. For example, the monthly payment can be fixed, or revised periodically (usually, once a year); life expectancy tables or a fixed number of years could be used to estimate the payments; the interest rate used to estimate the pension can be based on historical returns, on spot rates, or on estimates of future returns, etc. So, for the following descriptions the particular kind of PW which is actually being offered in most reformist countries will be used as reference.

Characteristics of the pension

If the objective of regulation is that the PW should last throughout the pensioner's life, then the monthly payment will be estimated by dividing the balance in the respective individuals' personal pension account by the "necessary capital" to finance one unit of pension (a year and for life) and by 12 (this is a formula similar to the one used to estimate life annuities):

$$(1) \text{ Pension}_n = (\text{capital}_n / \text{cnu}_n) / 12; \text{ where}$$

Pension_n = Monthly payment

Capital_n = Personal account balance in year n

Cnu_n = "Necessary capital" per unit of pension in year n

Sometimes, a minimum is set for the result of equation (1). For example, if the result of (1) is lower than a certain amount, let's say 50% of the minimum wage, the pensioner will then receive 50% of the minimum wage until his/her pension savings are totally depleted (which, in this case, should happen at an earlier age than his/her life expectancy). Eventually a maximum may also be set. In example, if the estimated pension from (1) happens to be higher than 50% of the pensioner's average wage, he/she may be authorized to take out of his/her pension account, as a lump sum, the "excess capital" (funds over the amount which is necessary to finance a pension equal to 50% of the average wage).

The " Cnu_n " is the necessary capital to finance an annuity which will pay \$1 starting at a specific date, and for the rest of the pensioner's life (and of his/her beneficiaries if pensions are "joint pensions"). So, it is an estimate of the "present value" of future payments of one unit of a pension (the larger the "necessary capital", the lower the pension will be). The "necessary capital" depends on two variables: i) probability of being alive (the pensioner and his/her beneficiaries) in every year in the future, and ii) interest rates. In particular, the lower (the higher) the probability of being alive in the future, the higher (the lower) the pension. Moreover, the higher the interest rate, the lower the "necessary capital" (less funds will be needed today to produce a unit of pension in future periods), and so the larger the pension; the lower the interest rate, the higher the "necessary capital" (more funds will be needed today to produce a unit of pension in future periods), and so the lower the pension.

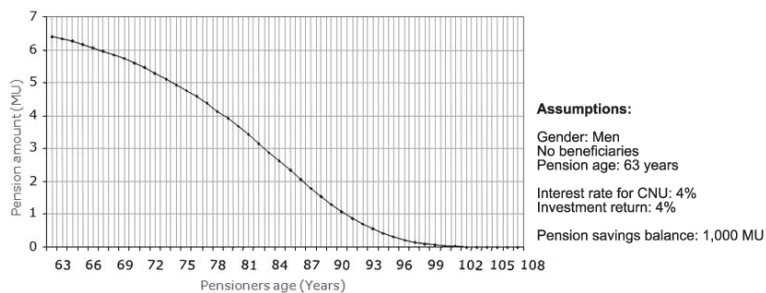
Because of its impact on the level of the pension to be paid, regulations on the interest rate to be used to estimate PWs are critical. For example, a "too high" interest rate would introduce a bias in favor of PWs and against life annuities. Also huge differences between current and future pensions could be observed if future rates of returns are lower compared with those used to estimate the pension in the previous periods. So, the critical issues that regulation on PWs interest rates should address are: on what basis should the interest rate be estimated? (historical returns; spot rates; future rates?); should the rate be constant or should it change every time the PW is re-estimated?; should all PW providers use the same interest rate to estimate the pension?

Since the amount of the PW depends on the balance of pension savings (which, in turn, depend on investment returns), life expectancies and actuarial tables (which have an impact on the "necessary capital"), and on the number, age and gender of beneficiaries (which also have an impact on the "necessary capital"), and all of these magnitudes change over time, PWs are usually re-estimated periodically. In most circumstances, the time profile of the PW amounts will be decreasing. This because, year to year, life expectancy will decrease less than a full year, while pension savings will have been used to pay for a full year of pensions (see Figure 1). This particular characteristic of the PWs has been highlighted by its critics since it seems at odds with one of the objectives of a

social security system, which is to finance a stable amount of pensions during retirement. In any case, there are some potential compensating developments, including a lower number of beneficiaries (i.e. death of a relative which had rights to receive a survivor's pension) and a positive difference between the actual rate of return of pension savings and the rate used to estimate the necessary capital.

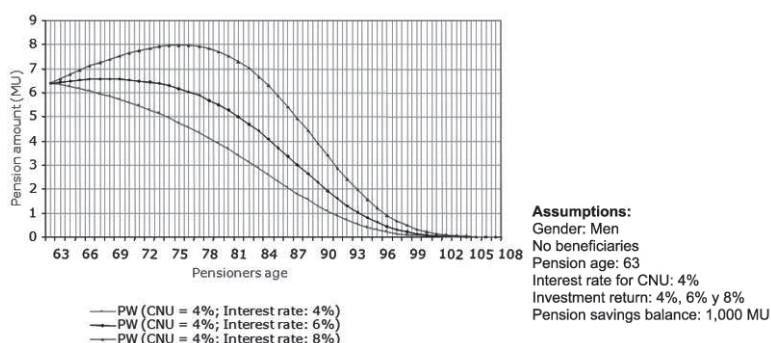
The impact of this last situation on PWs is particularly relevant. Figure 2 shows a PW estimated using a 4% interest rate for the "Cnu_n", with rates of return of the pension funds of 4%, 6%, and 8%. As expected, the greater the pension fund return, the larger the value of the PW. In fact, in some cases the increase in pension savings (because of large investment returns in the period) can outweigh the impact of the outflow of pensions and life expectancy, producing an increase in the amount of the PW in the subsequent periods.

FIGURE 1
PROGRAMMED WITHDRAWAL PROFILE



SOURCE: PRIMAMERICA CONSULTORES.
NOTE: MU= MONETARY UNITS.

FIGURE 2
PROGRAMMED WITHDRAWAL PROFILES



SOURCE: PRIMAMERICA CONSULTORES.
 NOTE: MU= MONETARY UNITS.

Demand for PWs

The demand of PWs is influenced by many different variables.

First, it depends on the sources of retirement income. The greater the other sources of retirement income (relative to the PW) that are not exposed to longevity and investment risk, the greater the demand for PWs. Let's assume that, at retirement, the worker is receiving pensions from a PAYGO defined-benefit pension program and from a funded pension program. In this case, the larger the pension that that worker receives from the PAYGO program, the greater will be his demand for PWs (from the funded pension program) because in the aggregate he is less exposed to the longevity and investment risks which come from this particular pension mode. In general, the lower the correlation between the value of the PW and other non pension retirement income, the greater will be the demand for PWs.

The preference of the pensioner for investment risk also has an impact on the demand for PWs, whatever the structure of the pension system. However, from the perspective of policy design, what is particularly relevant is that regulations can influence the investment risk preferences of individuals. For example, the existence of minimum return guarantees, or guaranteed minimum pensions (or, as we have already highlighted, other pensions uncorrelated with investment risk), will increase the willingness of pensioners to take the PW's investment risk.

Regulation can also have an impact on the demand for PWs in other ways. For example, there are some proposals to force pensioners to use the accumulated balance to buy a basic annuity. In this case the demand for PWs would only be “residual”, a fact which would reduce the size of that market. In other countries annuities can be bought only if their level is over some threshold set by law (i.e. the level of a minimum pension or some percentage of the pensioner’s historical average wage). In these cases, the regulation will create a “captive demand” for PWs, from those individuals who are unable to choose among the different pension modes.

Competition in the market of pension modes also has an influence on the demand for PWs. In Chile, pension fund management companies have been the only authorized providers of PWs and they have faced restrictions on the fees they can charge for this service. On the other hand, providers of annuities (the life insurance companies) have been able to market their product easily and, as a result of their stronger commercial effort, they have captured an increasing portion of the pension market.

The price of the substitutes is also relevant. Another example from Chile helps to illustrate the point. In this country, when the pension market just started, buying an annuity could cost up to 6% of the accumulated pension savings. At those prices, the level of annuity that could be bought was, of course, much lower than the expected PW pension, a result which had a positive impact on the demand for this kind of pension mode.

Finally, it’s worth remembering that under a PW the pensioner maintains ownership rights over his/her pension savings; so, in the event of death before depleting all the funds, the remaining balance will be part of the individual’s bequest. Therefore, the greater the demand for bequests, the greater the demand for PWs. This means that the pensioner’s perceptions about their own life expectancies also influence the demand for PWs. If an individual thinks that he will live for just a few years after retirement age and he wants to leave a bequest, then it will not be in his interest to pay for the longevity risk protection which annuities offer and will prefer a PW.

Does the market actually behave according to what theory says? We can explore an answer to this question on the basis of the Chilean experience. In Chile pensioners with low level of pension savings have chosen PWs instead of annuities. This can be explained mainly as the result of two different regulations: one which forces workers to take PWs if they have not enough funds to buy an annuity higher than the minimum pension; and a minimum pension guarantee which offers protection against the PWs’ investment and longevity risk (in other words, some of the workers opting for PW can pass the longevity and investment risk to the state). The Chilean experience also shows that pensioners with lower life expectancies (relative to the “average”) have chosen PWs, a result which is consistent with a preference for bequests (as poor health is

negatively correlated with income levels, this result also explain why individuals with lower pension savings have chosen PWs).

Finally, pensioners with high level of pension savings and higher personal wealth have also chosen the PW pension mode. This result is consistent with our previous remarks since it is likely that this group of pensioners has other sources of retirement income, different from mandatory pension savings (i.e. real estate), which are not correlated with longevity and investment risks.

Intermediation of PWs

In countries where pensioners can choose among different pension modes, the competition between providers of annuities and providers of PWs has not been intense. This result can be explained mainly because of regulations and the (thus far) small size of the market. In some cases pension fund management companies, which are the only entities authorized to offer PW, have not been authorized to charge fees for this product or have been authorized to use a fee structure which offers little economic incentive to sell the product. At the same time, as the population covered by the funded pension program is still young and, moreover, disability and survivors' pensions are, in many cases covered by a different program, the absolute number of pensioners is not enough to make the PW market attractive. Similar reasons explain why competition among providers of PWs has not been intense either. In fact, transfers of pensioners (as opposed to transfers of active contributors) between pension fund management companies are not common.

As we have suggested before, the combination of providers of annuities which actively promote their product in the market and compete against each other and "passive" providers of PWs which mainly react to the demands of information by potential pensioners, may have tilt the demand (of those groups who can choose among pension modes) in favor of life annuities for pensions.

POLICY CONCLUSIONS

PWs seem to be at odds with the objectives of a mandatory pension program, because they expose pensioners to longevity and investment risks which, as practical experience shows, they do not seem to be very well prepared to manage. So, why should PWs be authorized as a pension alternative in mandatory pension programs at all?

As we have already stated, when mandatory pension savings finance only part of the retirement income, and there are other sources of retirement income that are not correlated with the value of the PW, the risks to which the respective pensioners are exposed – and the arguments against this particular pension mode – become less relevant.

Another very important reason to authorize PWs is that the alternative of having only life annuities gives rise to numerous problems of its own. Low-income individuals (and those with bad health conditions) have lower life expectancies than high-income individuals (and those with good health conditions). Therefore, annuities redistribute from poorer individuals to richer individuals (and from the sick to the healthy), an outcome which is not consistent with the objectives of social policy. In fact, annuities can offer protection against longevity risks because their providers compensate the risk of individuals living longer with individuals who live less than what the respective life expectancy table indicates. It is this compensation between different kinds of individuals which makes it possible for life insurance companies to offer a life expectancy guarantee.

The mandate to annuitize may also come at a bad time. Last years' (2008) pension funds investments returns for mandatory pension funds all over the world were on average, -20%. People retiring last year or this year and being forced to buy an annuity would then be condemned to receive a reduced pension during the rest of their life. A similar result could surface when annuity prices are high. Therefore, pensioners should be offered the opportunity to choose the best moment to buy an annuity, which is an option that PWs do provide. Of course, the problem could be dealt with by postponing retirement, but this may not be an optimal solution from the individual's perspective.

In those countries where the life insurance industry is not well developed (which is the case in most pension reformist countries), a different argument in favor of PWs is that it is harder, and takes longer, to create efficient markets for annuities (compared with PWs markets). From the perspective of life insurance companies, annuities are very long term obligations, so solvency problems become very relevant. Moreover, developing an efficient regulatory framework for life insurance companies, building up the necessary supervisory capacity, and the accumulation of market expertise are time demanding activities that will require years to be completed.

Our conclusion is therefore, that PWs should be part of the authorized pension modes, and that to force the complete "annuitization" of pension savings is not an efficient alternative. However, annuities should be offered as an alternative to PWs and PW pensioners should be authorized to switch to annuities at any given moment. In many cases there will be no better protection against longevity and investment risks than what comes from a fixed-real annuity, so this product undoubtedly contributes to the objectives of a pension program. Eventually, buying a PW could be an option restricted to those individuals who can give proof that they have already protected some target replacement rate, either because they are receiving a pension from another component of the pension system (i.e. a "defined benefit" program), or because they are solvent and have other sources of retirement income. One alternative could be to authorize PWs only in combination with a deferred annuity.

ANNUITY MARKETS: THE CHALLENGE OF INFLATION

DIMITRI VITTAS ¹

- ¹ *Dimitri Vittas, former Senior Adviser at the World Bank, has specialized on financial sector development with particular emphasis on the promotion and regulation of pension funds, insurance companies and mutual funds and the interface between institutional investors and securities markets. He has published many working papers on these topics and was a member of the teams that produced the 1989 World Development Report on “Financial Systems and Development”, the 1994 World Bank report on “Averting the Old Age Crisis” and the 2007 Report on “Public Debt Market Development”. His recent work has covered second generation issues in pension reform, including the organization of individual accounts, the development of annuity markets and the investment framework of public pension funds.*

This paper addresses the challenge of inflation for annuity markets. Inflation is one of the main risks affecting annuity markets. Its discussion needs to be placed in the context of all the other risks facing pensioners, including longevity, investment, liquidity and bequest risks. The answer to the problem of inflation should not be sought in isolation from these other risks and preoccupations.

The basic rationale for life annuities is to protect retirees from outliving their savings. This implies that the level of pension benefits will remain high enough over time to cover the needs of retirees as they age. There are several types of retirement products that do not provide adequate and effective protection against the inflation risk.

We will first focus on the main shortcoming of fixed nominal annuities and then review briefly the various types of annuities that address the inflation risk. The latter include escalating nominal annuities, fixed real annuities, foreign currency annuities, and variable annuities. We draw examples from the experience of Chile, Denmark, and Sweden. The paper ends with some concluding remarks.

I. FIXED NOMINAL ANNUITIES

Fixed nominal annuities have traditionally been the main products that have been offered in most annuity markets. They provide protection against longevity and investment risks but are exposed to inflation risk. Even a low rate of inflation of 1% per year will lower the real value of annuity payments by 18% after 20 years. With 3% inflation, the reduction increases to 45% and with 5% to 62% (see Chart No.1).

CHART NO.1
INFLATION AND THE DECLINE IN REAL VALUES

Rate/Years	10	20	30
10%	61%	85%	94%
5%	39%	62%	77%
3%	26%	45%	59%
1%	9%	18%	26%
0.5%	5%	9%	14%

SOURCE: PREPARED BY THE AUTHOR.

Taking into account that the average life expectancy of retirees is between 15 and 20 years, between one half and one third of retired workers will still be alive 20 years after retirement. Therefore, if they buy fixed nominal annuities these pensioners will suffer heavily in advanced old age, even with moderate inflation.

Clearly, fixed nominal annuities do not provide effective protection against inflation. Nevertheless, workers who have a short life expectancy or who underestimate their longevity prefer fixed nominal annuities because early payments are higher than with alternative annuity products.

II. DEALING WITH INFLATION RISK

One can protect against inflation by using four products: escalating nominal annuities; fixed real annuities; foreign currency annuities (annuities that are linked to a reserve foreign currency, such as the US dollar or the euro); and variable annuities. Each of these has its own strong and weak points.

1. Escalating Nominal Annuities

The protection that escalating annuities provide is partial and depends on the rate of escalation (which is usually set at 3 or 5 percent) and the rate of inflation.

If the rate of escalation is higher than the inflation rate, the real value of annuity payments increases. In contrast, escalating nominal annuities suffer a decline in real value when the inflation rate exceeds the rate of escalation.

In principle, escalating annuities should appeal to people with longer life expectancy. This creates a self-selection bias, which providers of annuities must take into account in their pricing and reserving policies.

Despite their attractions and simplicity, escalating nominal annuities have not been actively promoted and do not seem to play a significant part in any national annuity market. It is also somewhat surprising that no country seems to be offering an escalating nominal annuity with a rate of escalation of 1.5%, which would be half the historical rate of inflation in advanced OECD countries.

2. Fixed Real Annuities

Fixed real annuities provide protection against longevity, investment and inflation risks. In the sense of providing protection, they are a good product. They start with lower payments than nominal annuities but exceed nominal annuity payments in later years. For this reason, they appeal to people with a longer life expectancy. This self-selection bias explains in part the higher load charge that fixed real annuities entail. In the absence of inflation-linked securities, annuity providers also charge an inflation risk premium that raises their cost.

The shortcomings of fixed real annuities are two. On the one hand, they may be expensive relative to nominal and variable annuities, mainly because the real rate of return on them is low, compared to other products. In fact, in most advanced countries, inflation-protected securities earn on average lower real rates of return than nominal securities, corporate equities and real estate, although their returns suffer from lower volatility.

On the other hand, the problem is that insurance companies and pension funds assume the inflation risk. They need to have access to inflation-protected securities (like inflation-linked bonds) to be able to hedge their risks. If they do not have such access, annuity providers assume a high exposure to inflation risk for which they charge a high premium. This makes fixed real annuities even less affordable and less economic for pensioners. To support the development of fixed real annuities, the authorities need to promote the issuance of inflation-linked securities, not only by the public sector but also by private corporations and households.

Fixed Real Annuities: the Chilean Case

The one country where fixed real annuities have done very well is Chile. In this country, the law does not authorize the use of fixed nominal annuities. For retirees who annuitize, it mandates the use of either fixed real annuities or variable annuities. So people have the option between fixed real annuities (or variable annuities) and phased (programmed) withdrawals.

In 2008, 66% of all primary pensioners had an annuity and 34% used a phased withdrawal. 90% of early retirees opted for a life annuity, but only 36% of old age

pensioners. There was a slowdown in recent years in the growth of the annuity market because of stricter conditions for early retirement. 20,000 new policies are issued each year, down from close to 30,000 before 2004, for a total premium of 50 million UF². Variable annuities were authorized in 2004, in combination with fixed real annuities, but there has been little activity.

In Chile there is ample supply of medium to long-term inflation-linked instruments, including government, corporate and mortgage bonds, so the insurance companies do not suffer from a major exposure to inflation risk. However, inflation bonds with maturities of over 20 years are not widely available. Thus, annuity providers suffer from a duration mismatch between their assets and liabilities, which is estimated at around 4 years. In order to have a fully protected market, it is necessary to not only have inflation-protected securities, but to issue them with a sufficiently long maturity.

At the beginning of the market the cost of annuities was very high because extraordinarily expensive commission rates were paid to agents and brokers (they exceeded 6% in the 1990s). Annuity commissions have fallen to close to 2% thanks to a new electronic quotation system (SCOMP) that was introduced in 2004 to improve the marketing of annuities and lower costs.

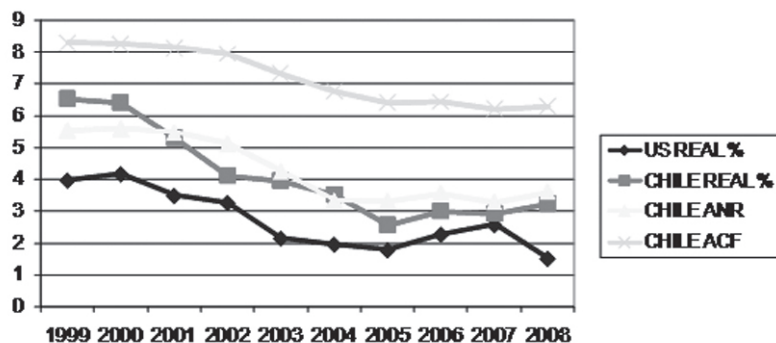
Chart No.2 shows the real interest rates in the US and Chile, as well as the annuity rates and annuity conversion factors in Chile for the period 1999-2008. The situation is plotted in Figure No.1. In the US, interest rates on TIPS (Treasury inflation-protected securities) used to be close to 4% in the late 1990s, but they have been declining over time and reached 1.5% in 2008. This is a low rate for an annuity that will be paying, on average, for the next 20 years, but in some cases much longer. In the case of Chile, the real interest rate exceeded 6% in the late 1990s. This was a very high rate, but it has also come down and by 2008 it reached 3%.

2 *Unidad de Fomento (UF) is a Chilean currency unit indexed according to inflation. This index is calculated on a monthly basis effective on the 10th day of the current month until the 9th day of the following month, with the value of the UF adjusted daily.*

FIGURE NO.1

REAL YIELDS ON TIPS IN US & CHILE

ANNUITY RATES & ANNUITY CONVERSION FACTORS IN CHILE



NOTE: ANR: ANNUITY RATE; ACF: ANNUITY CONVERSION FACTOR.
SOURCE: PREPARED BY THE AUTHOR.

CHART NO.2

REAL YIELDS ON TIPS IN US & CHILE

ANNUITY RATES & ANNUITY CONVERSION FACTORS IN CHILE

Year	US	CHILE		
	REAL %	REAL %	ANR	ACF
1999	3.95	6.51	5.52	8.28
2000	4.15	6.38	5.58	8.23
2001	3.47	5.27	5.45	8.13
2002	3.25	4.11	5.11	7.94
2003	2.14	3.93	4.23	7.31
2004	1.95	3.51	3.33	6.75
2005	1.77	2.55	3.30	6.40
2006	2.26	2.98	3.55	6.42
2007	2.56	2.90	3.27	6.20
2008	1.51	3.24	3.59	6.29

NOTE: ANR: ANNUITY RATE; ACF: ANNUITY CONVERSION FACTOR.
SOURCE: PREPARED BY THE AUTHOR.

The real rate of interest affects the calculation of the annuity conversion factor. This shows the annual income from an annuity in relation to the annuity premium. In the case of Chile, the annuity conversion factor was over 8% in the late 1990s but it has since declined to 6% in more recent years. The importance of this can be gauged by looking at the data shown in Chart No. 3. This chart shows that if a person has 20 years of life in retirement and the real rate of interest is zero, the annuity conversion factor will equal 5%, that is to say, for every 100,000 dollars in annuity premium, this person will receive an annual income of 5,000 dollars. If the real rate of return is 5%, the annuity conversion factor will be equal to 8% and his/her annual income will amount to \$8,000 (60 percent higher than in the previous example).

The annuity conversion factor is a very important statistic that needs to be closely monitored. If we take 8% as a yardstick, a person who has accumulated balances that are ten times his/her final salary will get a replacement rate of 80%. This would be a very good outcome. In most cases, the accumulated capital of retiring workers does not exceed five times earnings, while the annuity conversion factor ranges between 5% and 6%, so that the replacement rate lies between 25 and 30%.

CHART NO.3
REAL INTEREST RATES AND ANNUITY CONVERSION FACTORS

Rate/Years	15	20	25
5%	9.6%	8.0%	7.1%
3%	8.2%	6.7%	5.7%
1.5%	7.5%	5.8%	4.8%
0%	6.7%	5.0%	4.0%

SOURCE: PREPARED BY THE AUTHOR.

3. Reserve Currency Annuities

Another alternative for dealing with inflation is to offer annuities that are linked to one or other of the reserve currencies, mainly the US dollar or the euro (for Central and European countries). These annuities protect against runaway domestic inflation and large currency depreciation in small, poorly managed, economies. But unless they are linked to inflation-protected instruments they fail to provide effective protection against global inflation, especially over the long run. For example, US inflation averaged more than 3% per year over the past 30 years, which means a loss of 45% in real terms if the person lives 20 years after retirement. As a result, this is not a very good solution, but

it is better than a fixed nominal annuity, especially in a country that suffers from high domestic inflation and recurrent currency devaluations.

4. Variable Annuities

The main attraction of variable annuities is that they enable retirees to participate in the normally higher investment returns of equities, real estate and commodities. Their main weakness is that pensioners assume the investment and inflation risks.

With variable annuities, annuitants also usually share in the longevity risk. This is not a disadvantage but a different way of coping with this risk. When insurance companies insure the longevity risk, they make conservative assumptions about the future evolution of mortality, and thus add an upfront cost on their annuity offers. Sharing the longevity risk among annuitants avoids this upfront charge and may in fact be an efficient solution if annuity providers are subject to robust and effective regulation.

The variable annuities come in two forms: profit participating; and unit-linked. The profit participating annuities allow for some smoothing of returns and often take the form of “guarantee and bonus” annuities, combining guaranteed minimum benefits with annual bonuses that target the preservation of the real value of annuity payments. In unit-linked annuities, the investment risk is borne by annuitants, and they are often offered with caps and floors on their returns, which lower their exposure to the high volatility of equity returns.

The biggest challenge of variable annuities is to have a very sophisticated system of regulation and supervision with a high level of transparency. Clear rules need to be adopted for the initial calculation of annuity payments and their annual adjustment in the light of net investment returns, inflation, longevity experience, and operating costs. Unfortunately, such a system of regulation and supervision does not exist at present.

The marketing of variable annuities needs to receive close attention by regulators to prevent misselling campaigns and other deceptive practices that insurance companies undertake. When financial institutions are allowed to misbehave, unfortunately they do, so it is necessary to be careful to prevent misconducts. A central register comparing and publicizing the performance of different providers on a consistent and meaningful basis should be established in order to act as a discipline for the companies not to misbehave.

The example of Chile in setting up a centralized electronic quotation (SCOMP) system merits detailed consideration. This lowers search costs, minimizes the influence of brokers, and promotes greater transparency and competition. However, the same entity should offer both an electronic quotation system and a regular review of performance.

Variable annuities of the “guarantee and bonus” type are widely used in Denmark and Sweden. The annuities include basic payments that are guaranteed and additional payments that depend on the annual declaration of bonuses. These countries have faced some problems in the past ten years, because the insurance companies offered very high guarantees in the 1980s and early 1990s, when interest rates were also very high. But when interest rates fell to very low levels at the turn of the century, the companies were in serious financial trouble. They tried to deal with this problem by suspending and even in some cases reversing bonuses, causing considerable unhappiness and concern among the public.

However, despite this problem, the overall system works well in these two countries. Part of the reason is that most of the private sector annuities that are offered in Sweden and Denmark are the result of collective labor agreements, which favor defined-contribution plans and encourage the use of variable annuities, including both life and term annuities. Representatives of workers and employers monitor the performance of annuity providers and protect the interests of pensioners. In addition, the presence of two large state entities, the ATP³ in Denmark and the PPM⁴ in Sweden, has an impact on the market. However, there is no readily accessible compilation of data on the performance of variable annuities.

III. CONCLUDING REMARKS

There is a growing convergence among both academics and practitioners, which is actually reassuring to me. At the beginning there were some bizarre papers by academic economists that argued that under utterly simplistic assumptions total annuitization was the optimal solution. However, over time, economists adopted more realistic assumptions and now there is an almost universal agreement that neither total nor zero annuitization is optimal. It is now agreed that partial annuitization is more appropriate, with the level of annuitization depending on such factors as the level of income and wealth of individual retirees and their risk tolerance.

An important consideration is that all annuity products suffer from serious shortcomings. Some are exposed to investment and inflation risk, others only to inflation risk, others to fixed low returns. All annuity products suffer from liquidity risk, while fixed products are also exposed to annuitization risk. The best way to handle all these risks is to promote a combination of payout options.

3 *The Danish ATP (Arbejdsmarkedets Tillægspension or Labor Market Supplementary Pension) is a public pension fund that was created in 1964 to complement the universal pension benefit that is financed from general tax revenues and is paid to all old-age residents.*

4 *PPM (Premiepensionsmyndigheten or Premium Pension Authority) is a Swedish state authority that handles a part of the pension savings of the Swedish population, collected through taxes on income.*

The combination of payout options should require the use of a minimum level of fixed real annuities. In many countries, this would be provided by the first pillar. In Chile, this is equal to the Minimum Pension Guarantee.

For additional levels of annuitization, retirees should be free to choose between fixed real annuities, escalating, annuities, variable annuities, phased withdrawals and even self-annuitization.

Lump sums and self-annuitization could play a significant part, provided retirees are also required to purchase deferred annuities that would generate in advanced old age an adequate supplement to their income from the public pillar.

The one annuity product I would like to see banned is the fixed nominal annuity, because it fails to provide adequate protection in advanced old age. But, of course, this is not going to happen, because workers like them. Retiring workers who want to have money now and who do not calculate correctly how much they will need in the future and how long they are going to live, will always favor fixed nominal annuities.

The importance of integrity and transparency, of trust and mistrust cannot be emphasized enough. Most people do not trust insurance companies because they engage in deceptive practices. In addition, there is the problem of default. Annuity contracts are not revocable. Annuitants are exposed to the risk of provider insolvency about which they can take no action. Thus, offering solid government guarantees to protect annuitants in cases of default is essential. However, the market also needs a system of robust and effective regulation and supervision to ensure that annuity providers do not engage in deceptive practices and do not undertake overly aggressive marketing and pricing policies.



CHAPTER VII

THE MARKET FOR PENSIONS

RECAREDO ARIAS. Annuity markets: key factors for success

FIONA STEWART. Making choices in the pension payout phase

RICHARD JACKSON. Global aging and the future of funded pensions

ANNUITY MARKETS: KEY FACTORS FOR SUCCESS

RECAREDO ARIAS ¹

- 1 Recaredo Arias has a degree in Management from the Autonomous University of Mexico and an MBA with a mention in finance and marketing from the Instituto Tecnológico de Estudios Superiores de Monterrey, Mexico City. He is currently the Director General of the Mexican Association of Insurance Institutions (AMIS), a position he has held since 2003 and which he also held between 1989 and 1992. He is also currently the Secretary General of the Inter-American Federation of Insurance Companies (FIDES). Within AMIS, Recaredo has been responsible for internal and external control, collaborating with all the committees, participating in negotiations for the deregulation of the Mexican insurance market, developing a new Insurance Law and its subsequent amendment as well as the implementation of the Solvency Margin in Mexico, negotiating with the corresponding authorities and representatives in Congress.

The objective of this document is to share some perspectives about the main factors necessary to develop an annuity market successfully.

First, we will explain in detail ten factors that have an impact on the annuity market, focusing on the main problems faced as well as recommendations to minimize them. Second, we will conclude with some remarks about the challenges for pension regulators and the critical aspects for the correct functioning of a supervising and regulatory regime in the annuity markets.

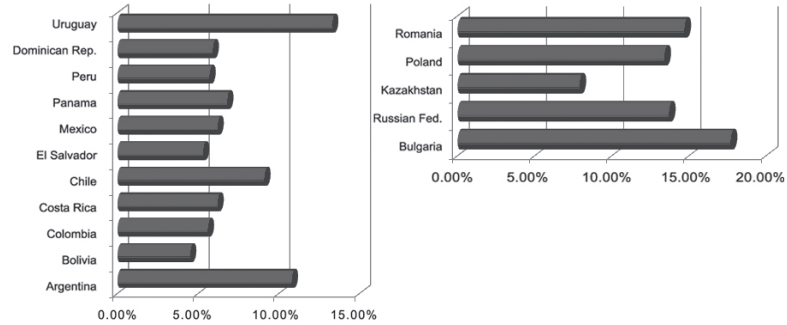
KEY FACTORS FOR THE SUCCESS OF ANNUITY MARKETS

Market size estimation

In some countries the market size estimated by authorities has been much higher than what has been experienced in reality, which generates problems. To create a proper business plan, we have to calculate the market size correctly, estimating it based on current statistics in order to arrive at a realistic number which does not generate false expectations.

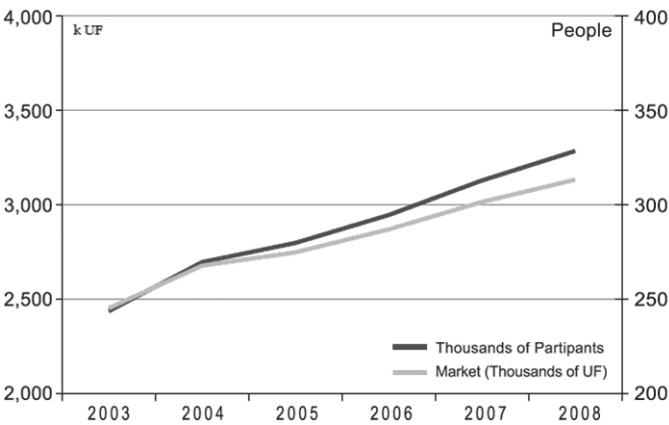
To assess market size, we can look at some key information: the population over 65 years in the FIAP countries (Figure No.1); the market for life annuities in Chile (Figure No.2); the proportion of affiliates to total population (Figure No.3) and the proportion of contributors to affiliates (Figure No.4) in FIAP's countries with mandatory funded pension systems. We can observe that Argentina was one of the biggest countries in its number of affiliates. Additionally, we can perceive that the countries with the largest proportion of affiliates to total population are Costa Rica, Chile, Mexico, Bulgaria, Kazakhstan and Poland, and the countries with the biggest proportion of contributors to affiliates are Argentina, Bolivia, Chile, Dominican Republic and Uruguay.

FIGURE NO.1
POPULATION OVER 65 YEARS (IN %)



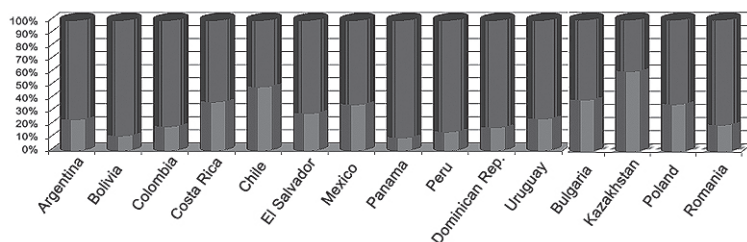
SOURCE: CIA - THE WORLD FACTBOOK, 2008 ESTIMATION.

FIGURE NO.2
MARKET FOR LIFE ANNUITIES IN CHILE



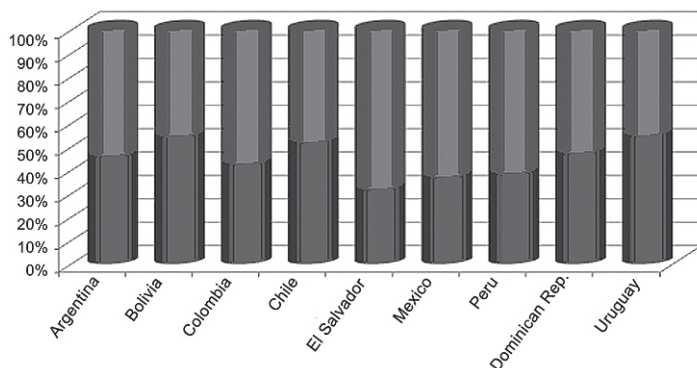
SOURCE: OECD.

FIGURE NO.3
AFFILIATES VS. TOTAL POPULATION (%)



SOURCE: FIAP - ONU (WORLD FACTBOOK) - FIDES.

FIGURE NO.4
CONTRIBUTORS VS. AFFILIATES (%)



SOURCE: FIAP - ONU (WORLD FACTBOOK) - FIDES.

Marketing schemes

In some countries the participation of agents selling annuities has created certain distortions in the market by offering benefits that were not properly financed and, in the long-term, were affecting the pensioners. The recommendation is to implement a commercialization scheme that is transparent in compliance with healthy standards and practices, protective of the funds accumulated, and careful to not distort market balance by unsafe commercialization practices. As we know, there are two principal schemes of commercialization.

On one hand there is a computerized system in which we are able to compare the different offers and proposals from the insurance companies participating in the system. On the other hand, we have a commercialization scheme based on agents.

We believe it would be hasty to say that agents are a negative influence in this system, because if we have the proper regulations and the proper market practices, it could be a solution. Agents would be able to advise the pensioner on the benefits and conditions of the proposal.

Retirement Pensions

In the case of the retirement pay-out phase, we have the following five problems: (i) transition schemes that encourage unhealthy incentives; (ii) the non-recognition of bonuses that have been granted during the transition phases; (iii) retirement with the benefits of the new regime has not always been possible, limiting the freedom of election. In many instances, it is very hard for the transition generation to have access to the new system. This can create many problems for the people; (iv) the retention of disability and death risks by public social security. It is very important that these risks be transferred to the insurance companies, otherwise it can generate negative incentives to the social security system to compete with the insurance companies for this kind of annuities; (v) finally, in some instances there are extremely low contribution levels.

The recommendations are: (a) to provide the possibility of accessing to immediate life annuities by granting a recognition bonus when changing regimes as was done in Chile and in many other countries; for example, in Mexico we are implementing this system for the governmental employees; (b) to achieve a replacement rate of at least 80% of the last monthly income by contributing a minimum of 10% to 11% of the employees' salary; (c) to encourage the participation of the private sector by covering death and disability through private insurance; and (d) to create a balance between incentives and profitability for all active participants of the system.

The above would generate sustainability for the system and create incentives. If there is a profit for the company in this equilibrium between incentives and profitability, which would be the optimum, it would offset the capital cost. Companies can create dividends in order to render them to the pensioners and to the social security system, generating the sustainability and creating fiscal incentives for the third pillar, specifically for the health risk that is a very big challenge for all these systems.

In Chart No.1 we have the number of old age pensions in several countries and in Figure No.5 we can see the percentage of retirees versus contributors.

CHART NO.1

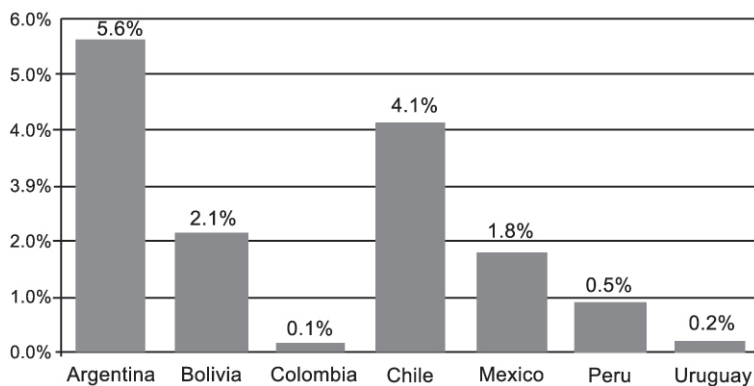
NUMBER OF OLD AGE PENSIONS – PHASED WITHDRAWALS AND LIFE ANNUITIES

LATIN AMERICA	2008	2007	2006	2005	2004	2003
ARGENTINA	n.a.	245,895	142,702	98,346	76,487	55,711
BOLIVIA	20,179	13,320	8,722	4,950	1,313	N.A.
COLOMBIA	9,073	7,415	5,813	5,080	4,411	3,513
CHILE	203,144	179,146	163,223	148,096	134,207	118,839
MEXICO	278,992	270,751	258,019	251,394	244,083	237,769
PERU	15,984	14,252	13,776	11,143	9,677	N.A.
URUGUAY	900	717	566	420	342	240

N.A. - NOT APPLICABLE.
SOURCE: FIAP.

FIGURE NO.5

RETIREE VS. CONTRIBUTORS (%)



SOURCE: FIAP - ONU (WORLD FACTBOOK) - FIDES.

Additional benefits and services

Another point that we have to consider is additional benefits and services. This is an issue that has created distortions in some countries' markets and, in certain cases, a high cost of in additional benefits with the related implications on the system's profitability. The authorities have to create the proper rules in order to avoid the companies competing for

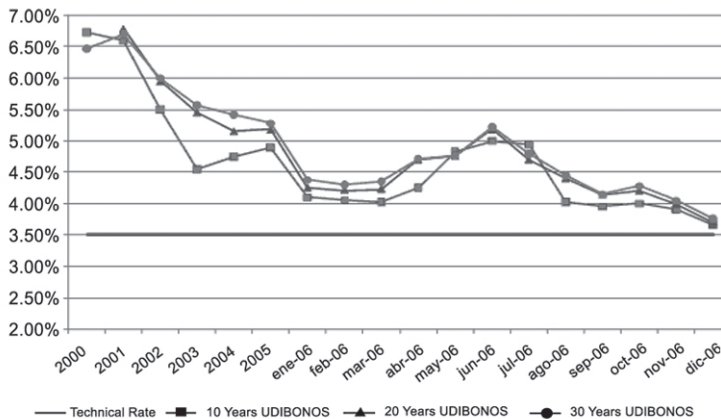
the pensioners by giving additional benefits that would deteriorate the future annuity. It is very important to address this to have a proper pension in the long-term.

Investment and capital regulations

The investment and capital regulations are – maybe - the key factors that we have to consider in order to maintain the profitability and solvency of the reserves that will provide the proper pensions for the workers. The problems in this area: (i) investment instruments have to avoid a negative rate of return, and the yield of the business should be profitable; (ii) restrictive and complex investment regimes are inefficient in dealing with varying types of risk, and it is one of the challenges of this system; (iii) lack of access to Risk Management tools, especially concerning market and longevity risks. These instruments should not be used to absorb pension risks, but to finance long-term projects.

In Figure No.6 we have an example of investment rates of return in Mexico. The differential margin of rates of return used to cover operational expenses, special funds and profits, decreased from 3.24% in 2000 to 0.16% in December 2006.

FIGURE NO.6
INVESTMENT RATES OF RETURN IN MEXICO



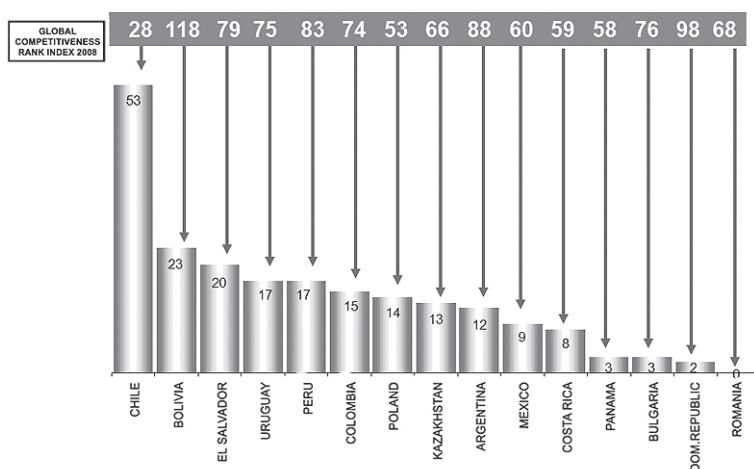
SOURCE: MEXICAN CENTRAL BANK.

Investment and capital regulations recommended helped several companies succeed. Indexed long-term investment instruments are necessary to adequately match liabilities. Matching regulations in function of cash flows and not in terms of the several

instruments is also important. Moreover, it is helpful to have special agreements to diversify longevity risks: USA and Denmark have special agreements to cover these (for ex. TIIA_CREF fund), and England issues longevity bonds. It is essential to have access to more developed derivative markets, as well as to balance rates of return provided by the generator of resources (in some cases, the social security system in each country) and private insurance companies. Finally, in order to allow a healthy functioning of the system, establishing fixed operational margins which include a reasonable amount of expenses and capital cost, is required.

In Figure No.7 we can see how much of the Gross National Product (GNP) the managed pension funds represent in the various countries. At the top of the chart we have the position that the countries occupy in the ranking that is provided by the Global Competitive Rank Index. In this chart Chile shows the highest percentage at 53% of the GNP and ranks the 28th country in the global competitiveness index. We also have El Salvador, for example, which is in the 79th position; and Poland which indicates 14% of the GNP and occupies the 53rd place in the global competitiveness index.

FIGURE NO.7
MANAGED FUNDS VS. GNP & GLOBAL COMPETITIVENESS INDEX

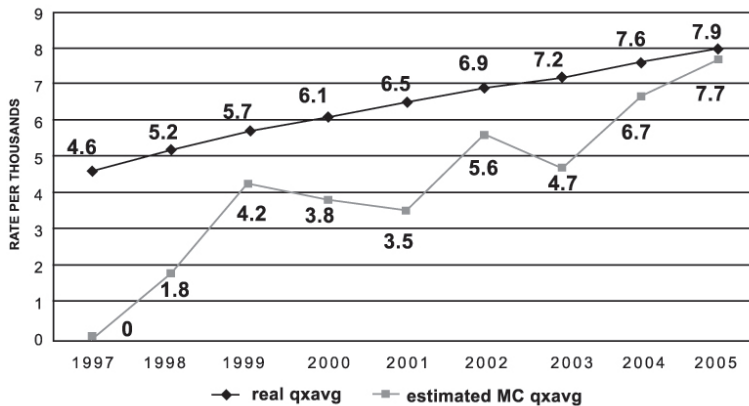


SOURCE: FIDES WITH DATA FROM WORLD ECONOMIC FORUM 2008 - WORLD BANK 2009 - SWISS RE 2008.

Mortality tables

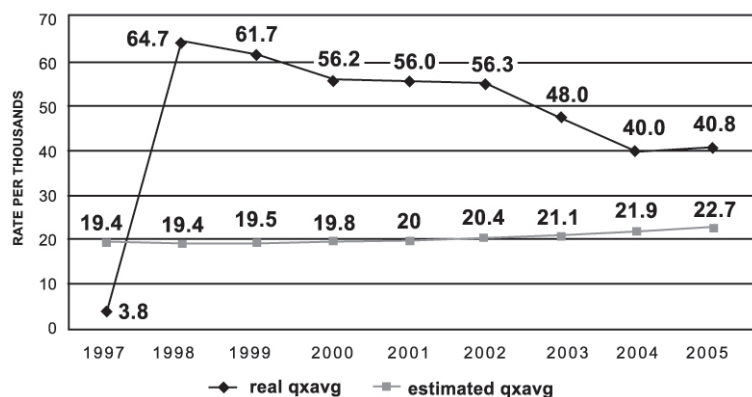
Another point that we have to consider is the mortality tables. The fact that disabled employees' mortality rates are similar to those of active employees is a problem which causes insufficiency in mortality calculations for active and disabled employees. The recommendations include the utilization of dynamic mortality tables, to recognize improvements in the life expectancy for active employees as well as for disabled ones. Also, partial disability should have its own mortality table, independent from that of total disability pensioners, and mortality tables should reflect the population's behavior and must be updated regularly (at least every 5 years). In the case of changes on the biometric tables, it is very important that these are used for future pensioners and not for the pensions in force. Otherwise, it can affect the system's security and the amount that they are providing for the proper pension, which can negatively impact the capital of the insurance companies. Examples of mortality tables in Mexico for active and disabled employees are shown in Figures No. 8 and No.9, respectively. In the case of active employees we can see that, due to improvements, margins are being reduced. In the case of disabled employees the observed tendency is due in great measure to criteria changes on behalf of the Social Security in disability rulings, as of the second semester of 2002.

FIGURE NO.8
MORTALITY TABLES FOR ACTIVE EMPLOYEES



SOURCE: PREPARED BY THE AUTHOR.

FIGURE NO.9
MORTALITY TABLES FOR DISABLED EMPLOYEES



SOURCE: PREPARED BY THE AUTHOR.

Operational processes

The rules for the operational processes should provide the proper security to the system, but they have to be efficient, complying with the proper rules. If they are not efficient and clear in the long-term, they can create some distortions in the market.

Operational processes currently in force have not been properly up-dated or agreed upon. For example, operational processes involving increases in payment amounts have not been totally defined; and the process for resources disposal from the special fund due to changes in the family's composition has not yet been properly defined.

In this case, the recommendations are the following: (i) before attempting to operate the system, all processes must be fully and officially defined and published; (ii) special increases granted to monthly payments must be generalized to all retirees (without discrimination by type of pension, age, gender, etc.); (iii) a fair process should be defined to treat unidentified employees; (iv) and efficient mechanisms must be established to confirm survivorship.

Statistics

In some instances, there is not sufficient information to generate mortality tables for active, disabled and partially disabled employees, as well as school desertion tables

and rates of change in family composition. Also, there is little information available regarding the issues and challenges of the pay-out of the retirement phase, in contrast with the accumulation phase.

In order to deal with the previous problems it is necessary to define the minimum information requirements to create the proper statistical system; to report necessary and sufficient data to be able to calculate mortality tables; and, of course, to generate the proper incentives to encourage participants to share valuable information.

Public social security system regulation

The public social security system regulation is a key factor of success of the annuity system. In some countries, the private insurance companies are competing in the market and with social security system simultaneously. This is the case in Mexico, for example. We have to avoid unhealthy incentives that encourage the public social security system to retain the more attractive payments, because in this case we will have adverse selection for the insurance companies. The disability ruling by the social security institutions is also very important to avoid unhealthy incentives as mentioned above.

Our recommendations are that in the cases in which there is coexistence between the private systems and the social security systems, equal rules have to be established avoiding negative incentives to prevent the social security system from retaining the best cases, permitting bad cases to go to the private systems. It is very important to create an independent mechanism that generates the qualification of the disabled; a mechanism to choose between both regimes; and another to select the insurance company that the pensioner will have in the future.

Regulations

One of the problems we have is that in certain instances the decision to grant pension payments is very discretionary. The operation rules are constantly changing, creating financial uncertainty among investors and consumers. The recommendations are to have strategic operational rules that remain as stable as possible in time, in order to grant confidence in the system for all participants, and principally the investors that are risking capital in this business. Also, all regulations and processes must comply with the official published operational regulation.

CONCLUDING REMARKS

Some private insurance sectors in the committee Groupe d'Assurance and the associations in the United States, Canada, Mexico, Australia and FIDES, have suggested, after sharing a broad spectrum of information and data of the pension plan markets, what the challenges for pension regulators are.

To be able to face these challenges, it is imperative to direct actions towards promoting and maintaining a solid insurance market that can satisfy the future needs of the consumer and the insurance business, therefore a market that is efficient, fair, safe, stable and trustworthy. Many of the countries suffering this financial crisis have the proper regulation, but their supervision has been a big failure in many instances, producing an important mismatch. It is also important to note that strengthening the regulations will not be the solution in this new era, strengthening all the supervision tools for the regulators will.

The strategic view of the judicial frame or the regulation frame is to have principles to promote a solid insurance market, with government policies, supporting the private sector's growth. Additionally, the supervisors must work to establish an effective and efficient regulation and maintain well-defined processes and procedures based on healthy standards of practice.

There are several critical aspects in this strategic view of the regulatory frame that need to be corrected to ensure the proper operation of a supervising and regulatory regime. These critical aspects are independence, responsibility, transparency, integrity and the ability to respond to the market's requirements. One of our suggestions is to go to a supervision-based model with a strategic risk administration as a tool to manage our companies.

We therefore recommend strengthening corporate governance with independent board members, as well as external financial and actuarial auditors; having internal risk models, internal controls, and delegated supervision committees. Furthermore, we also recommend involving the board of directors and the main officers of the insurance companies to a greater degree. We will, in this way, reassume the responsibility that we have managing of our companies. Finally, it is a problem of ethics and responsibility.

MAKING CHOICES IN THE PENSION PAYOUT PHASE

FIONA STEWART ¹

- 1 *Fiona Stewart works for the OECD's Financial Affairs Division. She provides Secretariat support for the organization's Working Party on Private Pensions, a group that brings together policymakers and other relevant parties from 30 member countries. She also works with the International Organisation of Pension Supervisors, IOPS, an international body dedicated to cooperation and research on pension supervisory issues. Prior to working at the OECD, Fiona worked in the investment industry for 10 years. She holds degrees from Oxford and Johns Hopkins Universities and a Chartered Financial Analyst qualification. She is also a member of the advisory board for one of the OECD's own pension funds.*

The main objective of this document is to share our views on the choice of pension products at the pay-out phase of pension systems.

Since financial education is one of the factors involved in making decisions about the optimal pension products, we will first briefly explain the OECD's Financial Education Project, as well as the good practices on financial education relating to private pensions. Subsequently, we will refer to the challenges in selecting products for the pay-out phase, focusing on the experiences of Chile and the United Kingdom. We will finish by drawing lessons applicable to other countries, and our concluding remarks.

OECD'S FINANCIAL EDUCATION PROJECT

The Organisation for Economic Co-operation and Development (OECD) has been working on a financial education project since 2003. The main objective of this project is to raise awareness of the need for financial education.

The OECD Member Governments became increasingly convinced of the importance of this topic as we realized surveys right across the OECD which showed that the level of financial knowledge and understanding is surprisingly low. This is true even in countries that have very high scores in Mathematics like Korea and Japan. Financial products are becoming more complicated, and risk and responsibility are increasingly being placed on individuals and on households.

For this reason the OECD governments became concerned and launched this project, trying to raise awareness of the issue in the population.

In 2005, we came out with a set of high-level principles for financial education and awareness, which also stated that we have to do more to assess the effectiveness of these programs. What's going on around the world? What's working and why? Governments have a very important role. There are many projects out there, many partners, but governments have an important role to play coordinating some of these national campaigns. We can work with a number of partners, and think out of the box, not just

on the educational side, but also on a big project to try and reach young people. Why not use mobile phone companies? Why not use music companies? We need as many broad partners as possible to get these messages across. Start as early on as possible and maintain momentum through life.

We have interesting teachable moments: there are particular moments in time when we are very open to financial education such as when we start work, or when we retire. Using those moments is important: getting the information across to as many people as possible is important; and using as many channels and simple messages to convey the information is also important.

A few years ago, we issued a publication analyzing some of these topics and what has been going on around the world. We have had a series of high level conferences over the years, and the G-8 Finance Ministers gave us a mandate to continue this work. A website² that develops the International Gateway for Financial Education (IGFE) is an ongoing project whose main goal is to fulfill the stated needs as well as the gaps identified by key international stakeholders in the financial education area. These include sound and comprehensive data, research, studies and information on worldwide financial education issues and programmes; a reliable source of dissemination and comparison of this information; a tool to exchange information, experiences and best practices on financial education between governmental representatives and key stakeholders.

GOOD PRACTICES ON FINANCIAL EDUCATION RELATING TO PRIVATE PENSIONS

Specifically on pensions, on the retirement income side, the OECD Council felt that it was very important to highlight financial education. Pension products have a very unique nature, which means that financial education is particularly important. These are very long-term and complex products with wide social coverage and therefore a very low tolerance to risk. Increasingly, pension assets in some OECD countries are now more than 100% of GDP. Therefore it is very important to make sure people understand what the responsibilities are, and what risk is involved with pensions. The above combined with demographic and systematic trends such as the decline in public pensions, the rise of private pensions, the shift from defined-benefit (DB) to defined-contribution (DC), and an increased individual choice. This places more responsibility back on us but, since surveys are showing that people's knowledge and understanding of pensions and retirement products is alarmingly low, we have been focusing on this area in particular.

We have guidelines compiled in 2008, specifically for financial education relating to pensions as well as insurance. These guidelines provide us with three key messages:

2 www.financial-education.org

- 1) Governments definitely play an important role in terms of national awareness campaigns relating to pension reform and how pensions are changing. An understanding of the pension system as a whole is very important since we cannot save and plan for our private pension if we do not understand what we are going to obtain from the public side.

Government has an important role in making sure people understand what they are entitled to from the private pensions' government's side, so they can make their own provisions.

- 2) There is also a key role for many stakeholders, like plan sponsors and employers.

Studies show that work-based seminars and financial education can play a very important role in increasing participation in occupational schemes; in increasing contributions; and also in helping people make more informed decisions. Therefore workplace involvement is very important.

- 3) There are limits to financial education. Financial education is not a silver bullet; it does not solve all problems. We need to have mechanisms to get people involved to ensure we get as many beneficiaries covered with the best understanding of pensions as possible, either through automatic enrollment, and/or using behavioral finance-type techniques in coordination with financial education.

CHALLENGES IN SELECTING PRODUCTS FOR THE PAY-OUT PHASE

It is fair to say that there is more work being done in financial education relating to pensions, but the actual pay-out phase has been largely ignored. Clearly, we need to improve in helping people make good decisions throughout the accumulation period. If not, and members are making sub-optimal decisions at the pay-out phase, then we are undoing half of our good work.

1. Choice between products

Clearly, the rise in DC pensions makes transition to the de-accumulation phase very important. Individuals risk making choices which could lock in suboptimal pension payouts for the rest of their retirement. The complicated nature of pension and annuity products makes individuals dependent on advice received – often from sellers of the products. Many people think they are tied into the provider who was involved on the accumulation phase. People do not necessarily understand they have a wider choice when they are moving to the de-accumulation period. However, it is interesting that across many countries, the demand for voluntary annuities is actually much lower than people would expect. Annuities are clearly the only product that really provides us with

good longevity insurance, and the risk pooling means that annuities - in theory at least - should give us a better return than many savings products.

Why are people not choosing annuities? Why is the voluntary rate so low? If we look at surveys or if we ask people to describe what they want from their retirement program, it is interesting to note that they basically describe annuity. At the same time, they say they do not like annuities and will say things like *"annuities are too inflexible", "annuities are illiquid", "we can't access funds", "we can't leave money as bequests", "I might be locked into a bad rate"*. People think of them as bad value even if the ratio of money's worth have favorable academic surveys, show the ratio is good or actually offers good value. People do not think of that, they think *"if I die early, all my money goes to insurance companies"*. We can therefore conclude people do not really like or understand these products properly.

What should policy makers do? We believe we have to stand back before saying that - clearly - financial education is the answer. First of all, we need to consider that individuals might be right. Maybe they are right not to like annuities. They may already be gaining a very high level of annuitization from the rest of their pension system. They might have quite a high public pension, which is effectively offering them an annuity. They may have a DB, occupational pension.

So, why should we force pension plan members into necessarily taking annuitization for a smaller part of their pension? There may be perfectly logical preferences for liquidity. For example, in countries where you need access to funds for health care or if they have a strong bequest motives, they may be quite right to prefer liquidity. The markets may be inefficient and mispriced. There may also be a lack of supply. In some countries, there are very few providers. In this case, the policy response needs to improve the supply issues and encourage suppliers to get involved in order to have better markets. This is really not a financial education issue per se; however, if we think people do not really understand or know the products that are available, there is a financial education issue involved.

Individuals may not know that flexible products exist. There are real annuities that protect against inflation; impaired life and enhanced annuities address adverse selection; deferred annuities allow for flexibility over timing; some products may allow for the inheritance of capital and payment of long-term care or healthcare costs. Clearly, policy makers need to make sure that there are no barriers to offering these products. Education has a role to play for consumers to understand that there is a range of products out there for them.

However, we could also argue that people might be wrong. Perhaps they do not fully understand annuity products, and, if they do understand the benefits - that is

the longevity protection they are really obtaining - financial education does have an important role. Some academic research suggests that people are making inadequate decisions based on poor information, and the fact that they do not understand these products. Research also shows that perception of annuities can be changed by how they are 'framed' or presented in comparison with alternative investments - an investment frame vs. consumption frame. Therefore how we actually present the products is very important, which suggests there is a relevant education role.

What are the policy responses? Governments could take a lead in improving knowledge of annuities. Also, education may be provided by employers at the time of retirement. Information and advice on annuities may be incorporated into financial education relating to pensions and savings as a whole. We need to be sure that financial intermediaries provide appropriate advice so that clients understand the products they are purchasing. And of course, regulators could provide easily understood and comparable information on annuity products.

2. ENSURING THE BEST ANNUITY PRICE

There is a second issue regarding the problem of getting people to understand annuities better, and that is making sure individuals get the right products at the right price, because of the complexity of these products.

Where annuitization is compulsory, ensuring the best price is the challenge. People think they are locked into the provider from the accumulation phase and do not necessarily quote alternatives; they do not realize that they have choices and can procure the accumulation phase from alternative parties or providers.

Several countries provide a centralized system for comparing annuity prices. Such systems can help increase knowledge and understanding - particularly when coupled with product explanation or advice. They may also deliver cost savings and efficiencies (via potentially lower marketing and distribution costs for providers) and assist with the timing of annuity purchases.

In most countries, comparative annuity quotations can be obtained via third-party advisors or brokers. Notwithstanding, they may charge commissions, be tied to one provider, and may not be able to provide advice, or be unwilling to take on clients with small balances. Impartial advice provided by public sources is preferred.

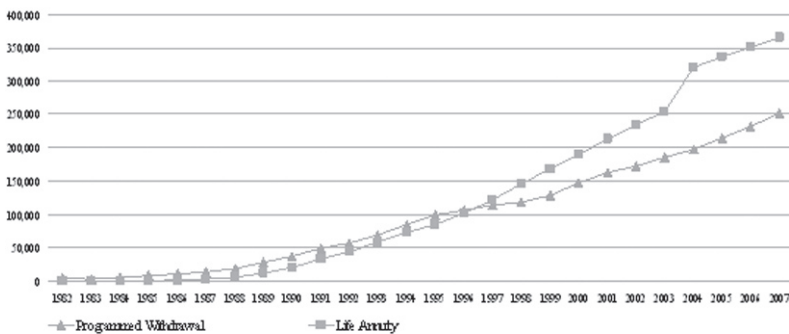
2.1 The Chilean case

In Chile, at retirement, individuals above a minimum wealth threshold use their accumulated savings to purchase an annuity product from an insurance company or

receive a programmed withdrawal (PW) from a Pension Fund Administrator (AFP), or a combination of both.³

The issue in Chile is interesting. Free choice of annuity led to a network of salesmen and high commissions paid, with annuity purchases rising compared to the PW's. Figure No.1 shows the evolution of the two main pension modes, life annuity and PW's. Life annuities have experienced accelerated growth since 1988, partly driven by the significant increase in the pensions due to early retirement.

FIGURE NO.1
NUMBER OF PENSIONS BY MODE



SOURCE: CHILEAN PENSION SUPERINTENDENCE (SPI).

In 2004 the Pension Consultations and Offers System (SCOMP, its acronym in Spanish) was introduced. This is a central electronic quotation system that seeks to provide the member with greater transparency and access to information, security and agility in the retirement process. SCOMP was created and designed jointly by the AFP's and the Life Insurance Companies.

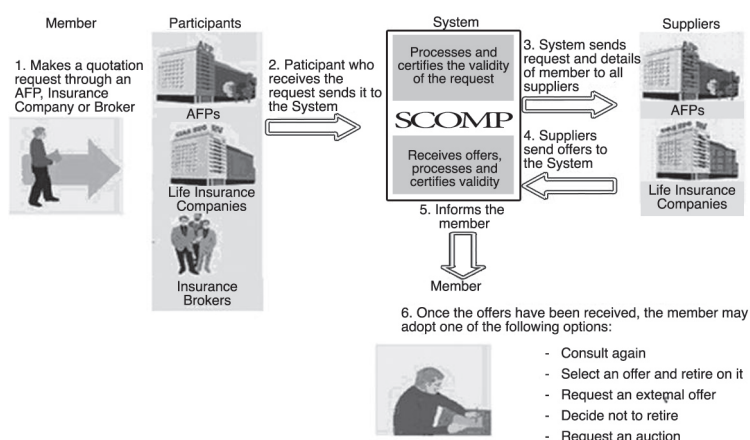
The system, which is supervised by the Chilean Pension Superintendence (SP) and the Chilean Securities and Insurance Superintendence (SVS), provide electronic transmission of requests and offers of pension amounts, certificates of the offers received and comparisons between the different pension modes being offered, so that the members can make the best decision.

3 There are four pension modes in the current law: (i) Immediate Life Annuity; (ii) Temporary Income with Deferred Life Annuity; (iii) Programmed Withdrawal; (iv) Immediate Life Annuity with Programmed Withdrawal.

When the member is due to retire, he makes a quotation request through an AFP, Life Insurance Company or Insurance Broker (see Figure No.2). The system sends out this request to all suppliers and the quotations are centrally compiled, they are then presented in a comparable format and sent to the member for review. The quotations are valid for 15 days and the member has the following options:

1. Accept one of the offers and retire on that⁴ ;
2. Reinitiate the process by requesting a new quote for a different product;
3. Decide not to retire and continue working for a time;
4. Accept an external offer, (outside the system), which has to be at least as good as the one received within the system; and
5. Auction the retirement plan between alternative providers for the best offer.

FIGURE NO.2
HOW SCOMP OPERATES



SOURCE: WORKING PAPER NO.7, MAY 2008, INTERNATIONAL ORGANISATION OF PENSION SUPERVISORS (IOPS).

4. Some members are not allowed to select a life annuity. If the accumulated balance in the individual capitalization account is less than the minimum pension guaranteed by the State at the date of the pension request, the member will not have right to choose any form of life annuity. In this case, the AFP administers the pension claim and calculates the corresponding PW. In all other cases, if the member can choose a life annuity, the AFP will have to start the pension selection process by emitting a certificate of balance and entering it to the SCOMP.

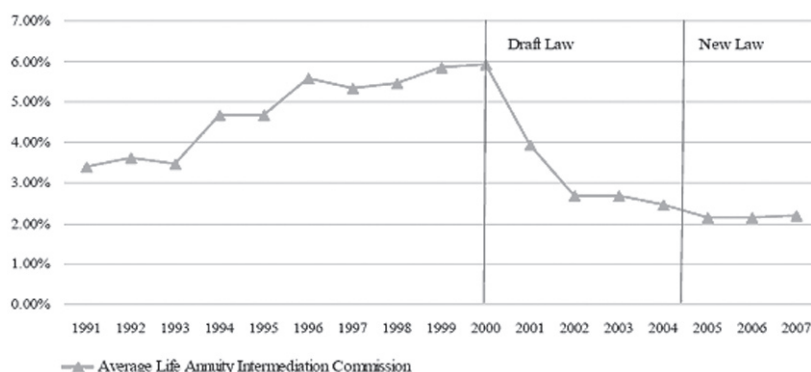
Interesting results have come out of this system. The system has been very well received over the last years. The information and the access to market have been greatly appreciated, particularly by people in rural areas who have difficulty getting financial advice, and also by people with very small balances. Apparently, there was a certain resistance from some of the providers, but they have worked well and the system seems to be working well.

It is interesting to note that only 12% of the people actually finalize the process without paying commissions, and only a small fraction of the participants has utilized the option to auction, suggesting most people still want the help of an intermediary. SP is working to simplify information further.

Therefore, even with a centralized system that people can use by themselves, they still prefer some help. A high percentage of people are actually choosing the better quote from outside the system. But research shows that there has been a significant reduction in the dispersion of the Money's Worth Ratios (MWRs)⁵, which means the system has had a fairly positive effect on the market as a whole. Moreover, The SCOMP, by the establishment of maximum commissions that the Insurance Companies can pay their sales agents and life annuity brokers, has allowed for a significant reduction in the commercialization commission charged on the individual account balance of affiliates. Figure No.3 shows the evolution of this commission. At the beginning of the 90s the average commission reached 3%, increasing constantly until reaching 6% at the end of 1999. In 2000, the government submitted a draft of the new pension law to Congress. Almost immediately, a strong reduction in the commission can be observed. The new law set a cap on the intermediation fee at 2.5% of the individual account balance. Therefore, after its approval, the average intermediation fee has remained below that amount.

5 The Money's worth ratio is an indication of the value provided to the customer in an annuity product. It is defined as the ratio of the expected value of the benefits payable under the contract to the premium paid. An efficient and transparent annuities market would produce similar MWRs.

FIGURE NO.3
EVOLUTION OF AVERAGE INTERMEDIATION COMMISSION



SOURCE: CHILEAN SECURITIES AND INSURANCE SUPERINTENDENCE (SVS).

Although there have been very interesting and positive results so far, it is still work in progress.

2.2 The UK case

The UK has also been doing some very interesting work in innovative processes to help people make decisions at retirement.

To ensure a more competitive annuities market, the UK Financial Services Authority (FSA) ruled that as of 2002 pensioners must be informed that they have the right to purchase their annuities from suppliers other than their current pension provider – i.e. to exercise an Open Market Option (OMO).

After several years of operation OMO was only partially successful. Knowledge and understanding of annuity issues has increased - as has the use of the OMO – but only around 1 in 3 individuals switch to a different annuity provider, despite the fact that the differential income offered by the existing pension provider and the top OMO rate can be as much as 30%. Problems identified with switching include inertia, lack of awareness, complexity of forms, time delays in making transfers, lack of alternative quotes, lack of understanding, or wishing to remain with the company one has built a good relationship with.

What the FSA did was to improve the OMO system by introducing a central comparable pricing system⁶ to try and help people understand the products better and to get comparable quotes. Individuals are asked a set of standard questions regarding the type of annuity they would like, and comparative quotations from the providers are then given. Though providers participate on a voluntary basis, all the main insurance companies who are active in the annuities market are represented.

Ensuring that individuals obtain competitive prices for annuities may however not be sufficient. Evidence from the UK suggests that potential retirees are not necessarily choosing the right product. Experts have suggested that for the OMO process to operate efficiently the annuity selection must involve two distinct stages: (i) ensure individuals select the right type of annuity product; (ii) secure a competitive quote.

The UK government has therefore developed a two stage system, with the involvement of the Pensions Advisory Service (TPAS) – an independent voluntary organisation providing pension advice that is funded by a UK grant. TPAS has developed an online system to help individuals choose the type of annuity that is right for them.⁷ Individuals are guided through a series of questions which will lead to a tailored answer as to what type of annuity would suit their circumstance. For example, when being asked to identify whether married or single, information will be provided on single vs. joint life annuities and in what circumstances the latter may be valuable. Information of alternatives to less standard products and other options (such as alternative secured pensions and the tax implication of these) is also provided. The respondent will then be guided to the FSA's comparative tables to find the best price for the product they have selected, or will be armed with a better understanding when consulting with a financial advisor.

LESSONS FOR OTHER COUNTRIES AND CONCLUDING REMARKS

What can we learn from the Chilean and UK examples? What can other countries learn?

On one hand, informing individuals of their right to get a quote from an alternative annuity supplier to their pension provider may not have sufficient impact. On the other hand, comparable quotation systems do add value, improve choice, can reduce costs and commissions, and are relatively economic and not too technically challenging.

6 See: <http://www.fsa.gov.uk/tables>

7 See: <http://www.pensionadvisoryservice.org.uk>

Moreover, the compulsory participation of providers may be necessary to ensure full industry involvement and overcome resistance. Government organized or supervised systems can ensure broad coverage and provide credibility, and involving a wide range of players in the development of the system is very helpful as well.

Another important thing is that information and data need to be understandable to a broad audience. Given the low levels of financial literacy and confidence with annuity products, building a role for intermediaries to provide advice and assistance may still be very important, and is recommended. Free and objective provision of information from government sources may be desirable, particularly for those people with low balances who may not be able to access - or afford - advisory services.

GLOBAL AGING AND THE FUTURE OF FUNDED PENSIONS

RICHARD JACKSON ¹

- 1 Richard Jackson writes on public policy issues arising from the aging of America's and the world's population. He is currently a senior fellow at the Center for Strategic and International Studies (CSIS), where he directs the Global Aging Initiative, and a senior adviser to the Concord Coalition. Jackson is the author or co-author of numerous studies on the implications of global aging, including *The Global Retirement Crisis* (2002); *The Aging Vulnerability Index* (2003); *The Graying of the Middle Kingdom* (2004); *The Graying of the Great Powers* (2008); and *Latin America's Aging Challenge* (2009). He holds a B.A. in classics from SUNY at Albany and a Ph.D. in history from Yale University.

This paper provides a concise overview of the economic challenges posed by global aging and explains why funded pension systems will be better able to meet those challenges than pay-as-you-go (PAYGO) systems. The first section briefly describes the dimensions of the coming demographic transformation. The second section discusses the impact of the transformation on fiscal burdens, economic growth and savings rates and explores the implications for the future of the funded and PAYGO models. The third section presents stylized replacement rate projections for Chile, Poland and China which demonstrate that, as societies age, funded systems will likely enjoy a widening advantage over PAYGO systems in their ability to deliver adequate benefits at affordable cost. The fourth section identifies some special challenges arising from the demographic transformation that the funded model, despite its relative advantage, will have to confront. A conclusion then sums up the paper's main findings.

I. THE DEMOGRAPHIC TRANSFORMATION

The world is being overtaken by an unprecedented demographic transformation (see Table No.1). For most of human history, the elderly comprised only a tiny fraction of the population, never more than 3% or 4% in any country until well into the Industrial Revolution of the 19th century. In today's developed world, the elderly comprise roughly 15% of the population. That share is due to rise to at least 25% by the middle of the century, and that is just the average. In Japan and in some of the fast-aging countries of Europe, the elder share of the population will be passing 35%.

TABLE NO.1
DEMOGRAPHIC INDICATORS

	Fertility Rate		Life Expectancy		Median Age			Elderly Share			Total Population Change
	1960	2005	1960	2005	2005	2030	2050	2005	2030	2050	2005-50
Europe	2.6	1.4	69.8	74.6	38.9	46.2	49.6	16%	23%	29%	-14%
Japan	2.0	1.3	69.0	82.6	42.9	52.3	56.2	20%	31%	39%	-22%
United States	3.3	2.0	70.0	78.2	36.0	38.6	39.6	12%	19%	20%	+40%
Sub-Saharan Africa	6.8	5.5	42.1	50.4	18.0	20.2	24.1	3%	4%	5%	+155%
Islamic Belt	6.5	3.1	46.4	67.7	23.2	28.7	32.1	4%	7%	12%	+91%
Developing East Asia	5.7	1.7	50.0	73.1	32.6	42.2	47.4	8%	17%	25%	+0.8%
South Asia	6.0	3.0	45.1	65.8	24.1	29.8	33.9	5%	9%	13%	+71%
Latin America	6.0	2.6	56.8	73.3	26.0	32.0	35.1	6%	11%	16%	+66%

SOURCE: UN POPULATION DIVISION, *WORLD POPULATION PROSPECTS: THE 2006 REVISION* (NEW YORK: UN POPULATION DIVISION, 2007); FOR PROJECTION SCENARIO AND REGIONAL DEFINITIONS, SEE RICHARD JACKSON AND NEIL HOWE, *THE GRAYING OF THE GREAT POWERS* (WASHINGTON, DC: CSIS, 2008).

The developed countries may be leading the way into humanity's graying future, but parts of the developing world are not far behind. Indeed, most of the developing world is now in the midst of the "demographic transition"—the shift from high fertility and high mortality to low fertility and low mortality that inevitably accompanies modernization. Fertility has plunged beneath the replacement rate in all of East Asia, including China, which faces a massive age wave in the 2020s. Fertility is also at, near or below the replacement rate in most of Latin America's leading economies, including Brazil, Chile and Mexico. Only Sub-Saharan Africa and a scattering of poorer Muslim-majority countries are so far failing to progress through the demographic transition.

II. THE ECONOMICS OF GLOBAL AGING

This epochal demographic shift, which is often referred to as global aging, promises to have a profound impact on both the real and financial economy—and hence on pension systems. Global aging obviously affects the payout phase of pension provision, since rising longevity means larger lifetime benefits in traditional defined benefit plans and lower replacement rates in defined contribution plans. But global aging also has important implications for the accumulation phase, since it may alter GDP growth, real wage growth and rates of return to capital. Trying to understand the future challenges facing pension systems without taking into account the impact of demographics is a bit like setting sail without a map or a compass.

This section first focuses on three critical economic effects of global aging: rising fiscal burdens, slower economic growth and lower savings rates. It then explains why countries that adopt funded pension systems will enjoy potentially important advantages in confronting the economics of global aging.

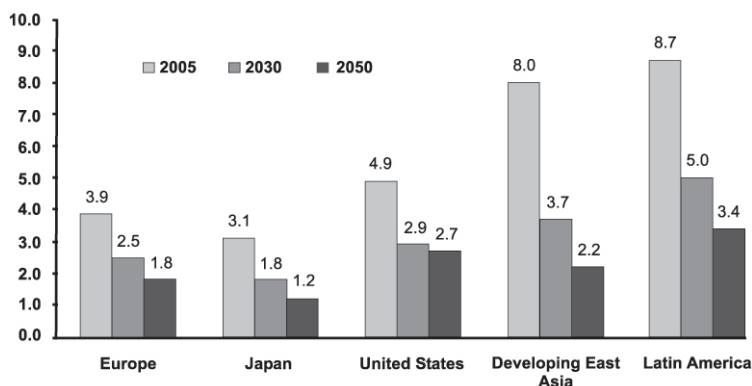
1. Fiscal burden

The most certain impact of global aging is fiscal. Graying means paying—more for pensions, more for health care and more for social services for the frail elderly. Falling fertility and rising longevity translate directly into a falling support ratio of working-age adults to elderly (see Figure No.1). A falling support ratio, in turn, translates into a rising cost rate for PAYGO benefit systems.

To gauge the potential pressure on government budgets, Table No.2 presents the results of a hypothetical “current deal” scenario that assumes that retirement ages under public pension programs in the G7 countries will remain unchanged in the future and that benefits will continue to replace the same share of wages they do today. As can be seen, deteriorating support ratios would, under this scenario, lead to roughly a doubling in the cost of PAYGO pension systems as a share of GDP between 2005 and 2050. At the low end, the cost of Canada’s public pension system would rise from 4.4% to 9.7% of GDP; at the high end, the cost of Italy’s would rise from 14.2% to 27.6% of GDP. These projections can be looked at two ways. On the one hand, they show the extra burden of maintaining the generosity of pension systems that most societies now consider adequate and politically acceptable. On the other, they show the magnitude of the policy adjustments that would be required to stabilize costs.

FIGURE NO. 1

NUMBER OF WORKING-AGE ADULTS (AGED 20-64) PER ELDER (AGED 65 & OVER) IN 2005, 2030 AND 2050



SOURCE: SEE TABLE NO. 1.

TABLE NO. 2
CSIS "CURRENT DEAL" PROJECTIONS FOR PUBLIC PENSION SPENDING*

	Public Pension Spending, as a % of GDP		Retirement Age Hike Required to Stabilize Costs	Benefit Cut Required to Stabilize Costs
	2005	2050	2005-50	2005-50
Canada **	4.4%	9.7%	10	55%
France	12.8%	22.1%	8	42%
Germany	11.7%	22.6%	9	48%
Italy	14.2%	27.6%	10	49%
Japan	8.7%	20.2%	11	57%
UK	6.6%	11.2%	7	41%
United States	6.1%	11.0%	7	44%

SOURCE: RICHARD JACKSON AND NEIL HOWE, *THE GRAYING OF THE GREAT POWERS* (WASHINGTON, DC: CSIS, 2008).

*PROJECTIONS ASSUME THAT RETIREMENT AGES WILL REMAIN UNCHANGED AND THAT BENEFITS WILL CONTINUE TO REPLACE THE SAME SHARE OF WAGES THEY DO TODAY.

**PROJECTION FOR CANADA IGNORES CURRENT TRUST-FUND BUILD UP.

How are governments likely to respond to the rising fiscal burden of PAYGO benefit systems? Some countries, of course, may try to raise taxes to maintain current benefits. With the possible exception of the United States, however, few developed-country governments have the fiscal room to pay for more than a fraction of the age wave's cost. In Europe, most countries are already at or beyond what economists call the threshold of efficient taxation—meaning that, rather than raise new revenue, higher tax rates would increase unemployment and drive workers into a growing gray economy.

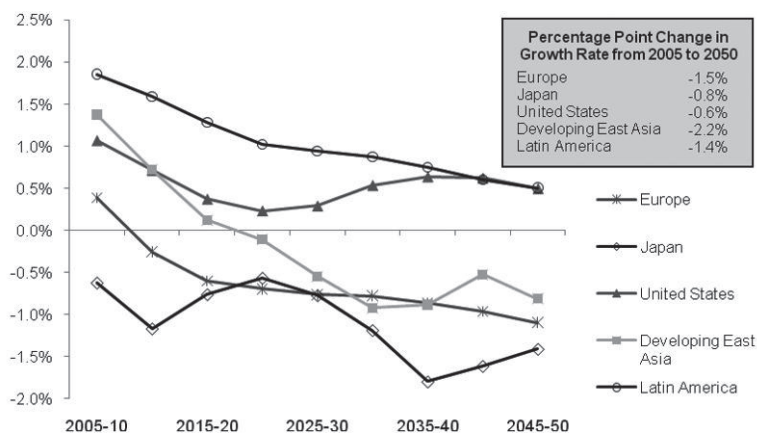
Inevitably, most aging countries with large PAYGO benefit systems will try to cut benefits—and indeed, several, including Germany, Italy and Japan, have recently enacted reforms that, if allowed to run their course, would lead to large future cuts in relative benefit levels. The problem is that the necessary benefit adjustments are large and will likely encounter growing political resistance from aging electorates. To stabilize costs as a share of GDP, the G7 countries would ultimately have to cut average pension benefits relative to average wages by between two-fifths and three-fifths—or, alternatively, they would have to raise retirement ages by between 7 and 11 years. Either way, the adequacy of retirement provision would be seriously undermined.

Faced with the choice between politically impossible benefit cuts and economically ruinous tax hikes, many countries will be tempted to choose one of two other options: allow the rising cost of old-age benefits to crowd out other government spending on everything from education and the environment to national defense; or else run widening fiscal deficits that undermine national savings and living-standard growth.

2. Economic growth

Beyond the fiscal challenge, there is the economic growth challenge. Falling fertility rates are not only transforming the traditional population pyramid, narrowing it at the base and, along with rising life expectancy, widening it at the top, but are also ushering in a new era of slower workforce and population growth—and, in many countries, absolute population decline (see Figure No. 2).

FIGURE NO.2
ANNUAL AVERAGE GROWTH RATE
IN THE WORKING-AGE POPULATION (AGED 20-64), 2005-2050



SOURCE: SEE TABLE NO. 1.

The slowdown in workforce growth will inevitably translate into slower GDP growth. This is not pessimism, but arithmetic. GDP growth, after all, is equal to the growth in the number of hours worked in the economy times the growth in output per hour, or productivity. By the 2020s, the working-age population in Japan and much of Europe and developing East Asia will be contracting by between 0.5% and 1.5% per year. Unless productivity rises at least as fast as employment falls, some of the world's largest economies will face a future of secular stagnation.

In fact, productivity may also grow more slowly as societies age, further reducing GDP growth. One reason is that societies with stagnant or contracting workforces will need to invest less than societies with expanding ones. Within a standard neoclassical framework, to be sure, lower aggregate investment would not be expected to affect

productivity growth so long as the capital-to-labor ratio continues to grow at the same rate. According to the so-called endogenous growth school, however, productivity depends crucially on the aggregate level of investment that societies undertake.² In this school's view, technological progress hinges on "learning by doing," and the more that societies invest, the more opportunities they have to learn.

Another reason that productivity growth may slow is that the workforce will not only be stagnating or contracting in most countries, but also rapidly graying. As the average age of employees rises, tomorrow's workforces may become less flexible, less mobile and less entrepreneurial. A vast empirical literature in the behavioral and social sciences establishes that worker productivity in most industries peaks by the early to mid-50s and thereafter declines.³ According to the 2007 Global Entrepreneurship Monitor, which surveys 53 countries, 40% of all "new entrepreneurs" (defined as an owner of a new business founded within the last three and one-half years) are under age 35 and 69% are under age 45. Only 9% are aged 55 and over.⁴

3. Savings rates

According to the well-known lifecycle consumption hypothesis, household savings follows a characteristic hump-shaped pattern that rises and falls with age. Youth is a time for dissaving (to finance family formation); the rest of the working years, and especially midlife, is a time for saving; and old age is again a time for dissaving (to finance retirement). Over the next few decades, the share of the population in the high-saving middle years will decline sharply in most countries and the share in the low-saving elder years will rise (see Table No. 3). As this shift unfolds, the lifecycle consumption hypothesis predicts that private savings rates will enter a steep decline.

2 For the classic formulation of the endogenous growth argument, see Kenneth J. Arrow, "The Economic Implications of Learning by Doing," *The Review of Economic Studies* 29, no. 3 (June 1962); and Paul M. Romer, "Increasing Returns and Long-Run Growth," *The Journal of Political Economy* 94, no. 5 (October 1986).

3 For a survey of the literature, see Vegard Skirbekk, "Age and Individual Productivity: A Literature Survey," MPIDR Working Papers no. 2003-08 (Rostok: Max Planck Institute for Demographic Research, 2003); and Alexia Prskawetz et al., "The Impact of Population Aging on Innovation and Productivity Growth in Europe," European Commission, October 2005, http://ec.europa.eu/employment_social/social_situation/studies_en.htm/.

4 Erkki Autio, *Global Entrepreneurship Monitor: 2007 Global Report on High-Growth Entrepreneurship* (London: Global Entrepreneurship Monitor, 2007).

TABLE NO. 3
ADULTS AGED 20 & OVER BY AGE GROUP, AS A PERCENT OF ALL ADULTS

		2005	2020	2030	2040	2050
Europe	Age 20-34	28%	23%	20%	20%	18%
	Age 35-59	48%	45%	43%	40%	38%
	Age 60 & Over	27%	32%	37%	40%	44%
United States	Age 20-34	29%	28%	26%	26%	26%
	Age 35-59	43%	42%	41%	41%	40%
	Age 60 & Over	23%	30%	33%	33%	34%
Japan	Age 20-34	25%	18%	17%	16%	15%
	Age 35-59	42%	41%	38%	34%	33%
	Age 60 & Over	33%	41%	44%	50%	52%
Developing East Asia	Age 20-34	35%	29%	23%	22%	20%
	Age 35-59	49%	49%	46%	42%	39%
	Age 60 & Over	16%	23%	31%	36%	40%
Latin America	Age 20-34	41%	35%	32%	31%	29%
	Age 35-59	44%	46%	45%	43%	41%
	Age 60 & Over	15%	19%	23%	27%	30%

SOURCE: SEE TABLE NO. 1.

This prediction is supported by an impressive number of macroeconomic studies that look at the relationship between population age structure and savings rates across large panels of countries.⁵ The clear consensus is that private savings rates in the future of the developed world—a future in which retirees will be abundant and young families scarce—will be considerably lower than they are today. Most of the studies also argue that savings will fall more than investment. In short, the developed world appears to be heading for a long-term future of capital scarcity and higher real interest rates, despite the lower investment requirement. Needless to say, mounting fiscal deficits due to rising old-age benefit costs would exacerbate the demographically led decline in private savings.

Some economists also predict that developed economies will see an “asset meltdown” as large generations of new retirees (US baby boomers, for instance) start liquidating their assets by selling them to the smaller midlife generations that are following behind. Although this scenario is much discussed, there is little compelling evidence

5 For a survey of the macroeconomic literature on demographics and savings, see Richard Jackson and Neil Howe, *The Graying of the Great Powers: Demography and Geopolitics in the 21st Century* (Washington, DC: CSIS, 2008).

to support it.⁶ One of the strongest arguments against it is that, in a world of rapidly developing economies and globalized capital markets, retirees in fast-aging countries can always find a larger generation of younger adults somewhere in the world to sell to.

4. The advantages of funding

As global aging transforms the economy, countries that rely at least in significant part on funded pension systems will be better positioned to confront the challenge than countries that retain predominantly PAYGO systems. The benefits of the funded model will accrue both to society as a whole and to individual workers and retirees.

At the macro level, funded pension systems have two potentially important advantages. First, they can help to reduce the rising long-term fiscal burden of global aging. Merely cutting PAYGO benefit commitments is not enough. Unless reforms also fill in the resulting gap in retirement income, they will prove politically and socially unsustainable. The only way to do so without imposing a growing burden on tomorrow's relatively smaller generations of working-age adults is for tomorrow's elderly to finance more of their own retirement income out of savings set aside during their working years. Second, funded pension systems can help to maintain adequate levels of savings and investment as societies age. Whether or not they actually do so, of course, will depend on how transition costs are financed.

At the micro level, funded pension systems will be able to deliver the same benefits at a lower contribution rate than PAYGO systems can—or, alternatively, higher benefits at the same contribution rate. The implicit rate of return to a PAYGO system is equal to the rate of economic growth (or, more precisely, to the rate of growth in workers' taxable payroll), while the rate of return to a funded system is equal to the rate of return to capital, which is typically higher, especially in aging societies. As we have seen, economic growth is due to slow dramatically in most developed countries and many emerging markets over the next few decades. As it does, the wedge in rates of return between funded and PAYGO systems is likely to widen.

To be sure, slower GDP growth may also mean a lower long-term rate of return to capital. Aging countries with funded pension systems, however, can get around this problem by investing in younger countries with faster growing economies—provided, of course, that restrictive government regulations do not prevent pension funds from

6 See, for example, James M. Poterba, "Demographic Structure and Asset Returns," *The Review of Economics and Statistics* 83, no. 4 (November 2001); and Kyung-Mook Lim and David N. Weil, "The Baby Boom and the Stock Market Boom," *The Scandinavian Journal of Economics* 105, no. 3 (September 2003).

globally diversifying their portfolios. In contrast, aging countries with PAYGO systems have no way to escape the tyranny of their own demography.

III. STYLIZED REPLACEMENT RATE PROJECTIONS FOR AGING SOCIETIES

The bottom-line test for any pension system is whether it can provide adequate benefits at an affordable cost. To illustrate the advantage of the funded model in aging societies, this section presents replacement rate projections for equivalent PAYGO and personal accounts systems in three countries: Chile, Poland and China. Note that the projections are stylized and do not refer to the existing pension arrangements in these countries. In all three countries and for both the PAYGO and personal accounts systems, workers are assumed to contribute 10 percent of wages, work for 40 years, and retire at age 65. The differences in replacement rates in Chile, Poland and China are thus due entirely to their different demographics. For the personal account projections, where the only relevant demographic variable is life expectancy at retirement, these differences are relatively small. For the PAYGO projections, where the replacement rates that the systems can generate also depend on the aged dependency ratio, they are huge.

The relative advantage of the funded model will naturally depend not just on the degree of demographic aging in each country, but also on the future rate of return to capital and the future rate of real wage growth. While a higher rate of return raises the replacement rate of a personal accounts system, a higher rate of real wage growth lowers it. Personal account replacement rates are therefore projected under a range of assumptions for both variables and presented as matrices. Projected replacement rates for the equivalent PAYGO systems are presented on a row beneath each matrix. Although the PAYGO results are not affected by the rate of return assumption, they vary with real wage growth, which here pushes in the opposite direction and raises replacement rates. The shaded cells in each personal account matrix show the combinations of rate of return and real wage growth assumptions under which the funded model outperforms the PAYGO model. All results shown are for the year 2050.

1. The Chilean case

In Chile, the personal accounts system substantially outperforms the equivalent PAYGO system under most reasonable economic assumptions (see Table No. 4). If real wage growth continues to average 2.0%, about the historical record in Chile over the past two decades, the real rate of return would have to fall to 3.0%, which many economists consider the risk-free rate of return, before the funded model loses its long-term advantage. With 2.0% real wage growth and a 5.0% real rate of return, a standard assumption for a globally diversified portfolio of stocks and bonds, the advantage would be huge: a 51% replacement rate for the personal accounts versus a 28% replacement rate for the PAYGO system. For the PAYGO system to match the

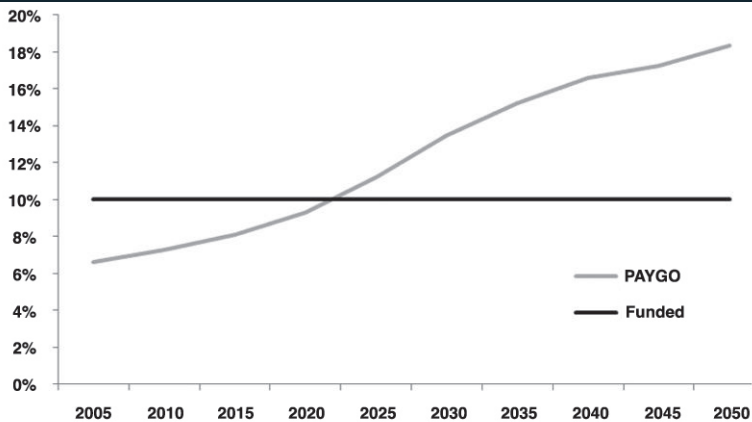
personal account replacement rate, its contribution rate would have to rise to 18% by 2050 (see Figure No. 3).

TABLE NO. 4
CHILE: STYLIZED PERSONAL ACCOUNT REPLACEMENT RATE PROJECTIONS FOR 2050
VS. PAYGO REPLACEMENT RATES ASSUMING THE SAME 10% CONTRIBUTION RATE*

		Real Wage Growth Rate					Outperforms PAYGO
Real Rate of Return		3.0%	2.5%	2.0%	1.5%	1.0%	
	3.0%	23%	25%	28%	31%	34%	
	3.5%	26%	29%	32%	36%	40%	
	4.0%	31%	34%	38%	42%	47%	
	4.5%	35%	39%	44%	49%	55%	
	5.0%	41%	46%	51%	57%	64%	
	5.5%	48%	53%	60%	67%	76%	
	6.0%	56%	62%	70%	79%	89%	
PAYGO		31%	29%	28%	26%	25%	

*PAYGO CALCULATIONS ASSUME UNIVERSAL COVERAGE, A RETIREMENT AGE OF 65, AND PRICE INDEXATION; PERSONAL ACCOUNT CALCULATIONS ASSUME A 40-YEAR CAREER, A RETIREMENT AGE OF 65, AND ADMINISTRATIVE CHARGES EQUAL TO 0.5 PERCENT OF ASSETS.
SOURCE: AUTHOR'S CALCULATIONS AND (FOR DEMOGRAPHIC PROJECTIONS) UN POPULATION DIVISION, *WORLD POPULATION PROSPECTS: THE 2006 REVISION* (NEW YORK: UN POPULATION DIVISION, 2007).

FIGURE NO.3
CHILE: PAYGO CONTRIBUTION RATE ILLUSTRATION*



*CONTRIBUTION RATE REQUIRED TO GENERATE THE SAME (51%) REPLACEMENT RATE AS A 10% PERSONAL ACCOUNT CONTRIBUTION RATE WITH 2.0% REAL WAGE GROWTH AND A 5.0% REAL RATE OF RETURN. PAYGO CALCULATIONS ASSUME UNIVERSAL COVERAGE, A RETIREMENT AGE OF 65, AND PRICE INDEXATION; PERSONAL ACCOUNT CALCULATIONS ASSUME A 40-YEAR CAREER, A RETIREMENT AGE OF 65, AND ADMINISTRATIVE CHARGES EQUAL TO 0.5 PERCENT OF ASSETS.
SOURCE: SEE TABLE NO. 4.

2. The Polish case

In Poland, with its lower fertility rate and more extreme aging trend, the results are even more decisive (see Table No. 5). With 2.0% real wage growth and a 5.0% real rate of return, the personal accounts system would generate a 53% replacement rate—three times the 18% replacement rate that could be generated by the equivalent PAYGO system. For the PAYGO system to match the personal account replacement rate, its contribution rate would have to rise all the way to 30% by 2050 (see Figure No. 4).

TABLE NO. 5

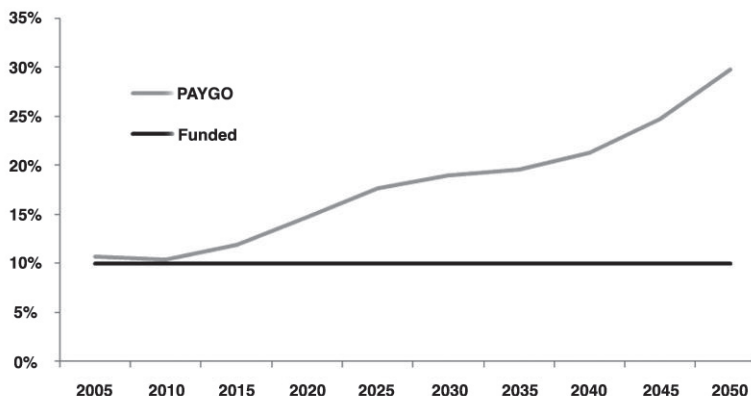
POLAND: STYLIZED PERSONAL ACCOUNT REPLACEMENT RATE PROJECTIONS FOR 2050 VS. PAYGO REPLACEMENT RATES ASSUMING THE SAME 10% CONTRIBUTION RATE*

		Real Wage Growth Rate				
Real Rate of Return		3.0%	2.5%	2.0%	1.5%	1.0%
	3.0%	24%	26%	29%	32%	36%
	3.5%	28%	31%	34%	37%	42%
	4.0%	32%	35%	39%	44%	49%
	4.5%	37%	41%	48%	51%	57%
	5.0%	43%	48%	53%	60%	67%
	5.5%	50%	55%	62%	70%	78%
	6.0%	58%	65%	72%	82%	92%
PAYGO		20%	19%	18%	17%	16%

Outperforms PAYGO

*PAYGO CALCULATIONS ASSUME UNIVERSAL COVERAGE, A RETIREMENT AGE OF 65, AND PRICE INDEXATION; PERSONAL ACCOUNT CALCULATIONS ASSUME A 40-YEAR CAREER, A RETIREMENT AGE OF 65, AND ADMINISTRATIVE CHARGES EQUAL TO 0.5 PERCENT OF ASSETS. SOURCE: SEE TABLE NO. 4.

FIGURE NO. 4
POLAND: PAYGO CONTRIBUTION RATE ILLUSTRATION*



* CONTRIBUTION RATE REQUIRED TO GENERATE THE SAME (53%) REPLACEMENT RATE AS A 10% PERSONAL ACCOUNT CONTRIBUTION RATE WITH 2.0% REAL WAGE GROWTH AND A 5.0% REAL RATE OF RETURN. PAYGO CALCULATIONS ASSUME UNIVERSAL COVERAGE, A RETIREMENT AGE OF 65, AND PRICE INDEXATION; PERSONAL ACCOUNT CALCULATIONS ASSUME A 40-YEAR CAREER, A RETIREMENT AGE OF 65, AND ADMINISTRATIVE CHARGES EQUAL TO 0.5 PERCENT OF ASSETS.
SOURCE: SEE TABLE NO. 4.

3. The Chinese case

The advantage of the funded model in China is at first glance less apparent. Although China is a rapidly aging society, it is also a rapidly developing society (see Table No. 6) that is now registering extremely high (double-digit) rates of real wage growth. In the near term, this tilts the balance in favor of the PAYGO model. Yet in any success story for China's economy, real wage growth will eventually slow to something closer to developed world levels—and as it does, the balance will tip the other way. Consider: For the PAYGO system to outperform the personal accounts system in 2050, assuming a 5.0% real rate of return, real wage growth would have to average 5.0% or higher indefinitely, quadruple the recent developed-country average. Even at a 3.0% real rate of return, real wage growth would have to average 3.0% or higher.

TABLE NO. 6

CHINA: STYLIZED PERSONAL ACCOUNT REPLACEMENT RATE PROJECTIONS FOR 2050
VS. PAYGO REPLACEMENT RATES ASSUMING THE SAME 10% CONTRIBUTION RATE*

		Real Wage Growth Rate				
Real Rate of Return		6.0%	5.0%	4.0%	3.0%	2.0%
	3.0%	15%	18%	21%	25%	30%
	3.5%	17%	20%	24%	29%	35%
	4.0%	20%	23%	27%	33%	41%
	4.5%	22%	26%	31%	38%	47%
	5.0%	25%	30%	36%	44%	55%
	5.5%	29%	34%	42%	51%	64%
	6.0%	33%	39%	48%	59%	74%
PAYGO		35%	32%	29%	27%	24%

Outperforms PAYGO

*PAYGO CALCULATIONS ASSUME UNIVERSAL COVERAGE, A RETIREMENT AGE OF 65, AND PRICE INDEXATION; PERSONAL ACCOUNT CALCULATIONS ASSUME A 40-YEAR CAREER, A RETIREMENT AGE OF 65, AND ADMINISTRATIVE CHARGES EQUAL TO 0.5 PERCENT OF ASSETS.

SOURCE: SEE TABLE NO. 4.

IV. NEW CHALLENGES FOR FUNDED PENSION SYSTEMS

Although funded pension systems will enjoy important advantages over PAYGO systems in aging societies, the coming demographic transformation nonetheless poses significant challenges for the funded model in general and personal accounts in particular.

One challenge will be maximizing risk-adjusted returns. As economic growth slows in fast-aging countries, exerting downward pressure on rates of return, pension funds will need to ensure that their investment portfolios are globally diversified. In some countries, this will require a thorough overhaul of government regulation, which often treats pension funds as a source of captive domestic investment. While investing in younger and faster-growing emerging markets can allow pension funds to reap higher returns, it will also require sophisticated risk assessment. Another challenge will be minimizing inflation risk. Some large economies with expensive PAYGO systems will almost certainly run widening fiscal deficits. This will pose a problem for all countries, not just those generating the red ink. In globalized financial markets—and especially within economic unions like the European Economic and Monetary Union (EMU)—countries that fail to prepare for the age wave can inflict inflation on the prudent and the profligate alike.

The biggest challenge, however, may be rising longevity, which threatens to gradually but steadily erode personal account replacement rates. This risk may be greater than many policymakers and pension fund managers appreciate. It is worth recalling that the history of life-expectancy projections is mostly a history of embarrassing underestimates.

According to one review of the literature, every estimate of maximum life expectancy made between 1928 and 1990 has already been exceeded—and on average within just five years of the forecast.⁷ The UN itself has raised its estimates of future life expectancy in each successive revision of its long-term projections over the past decade. It is now projecting that the developed countries will attain life expectancies in 2050 that are two or three years higher than what it was projecting as recently as 1996 (see Table No. 7). While most actuaries tend to be “longevity pessimists” and assume that the long-term rate of improvement in mortality rates will slow, most demographers, looking at the historical evidence, now believe that it will continue at close to its historical pace. If the demographers are right, we will soon be looking at a new round of upward revisions.

TABLE NO. 7
UN PROJECTIONS OF LIFE EXPECTANCY AT BIRTH IN 2045-2050

	1996 Revision	2008 Revision
Canada	83.2	85.2
France	83.1	86.0
Germany	81.6	84.4
Italy	83.5	85.4
Japan	83.8	87.2
UK	82.0	84.1
United States	81.7	83.3

SOURCE: UN POPULATION DIVISION, *WORLD POPULATION PROSPECTS: THE 1996 REVISION* AND *WORLD POPULATION PROSPECTS: THE 2008 REVISION* (NEW YORK: UN POPULATION DIVISION, 1997 AND 2009).

It is important to remember that longer life spans pose a serious challenge for all types of pension systems. The only real question is who should bear the cost: workers or retirees? In traditional public PAYGO systems (as well as traditional employer pensions), the cost has of course been shifted to current workers through higher contribution rates. This is now changing as societies age and pension costs rise. Some countries (including Italy, Poland and Sweden) have transformed their defined-benefit PAYGO systems into notional defined-contribution (NDC) systems in which, just as in funded personal accounts systems, benefits are adjusted to reflect cohort life expectancy at retirement. Even some countries that have retained traditional PAYGO systems (including Germany and Japan) have enacted “demographic stabilizers” that in effect index benefits to life expectancy. In short, the emerging consensus is that, at least in part, the costs of longer life spans must be borne by retirees themselves, either by accepting lower replacement

7 Jim Oeppen and James W. Vaupel, “Broken Limits to Life Expectancy,” *Science* 296, no. 5570 (May 10, 2002).

rates or by working longer. The latter is the optimal solution, since it both benefits the economy and preserves income adequacy. In aging societies, higher retirement ages are not only necessary, but desirable.

V. CONCLUSION

The recent global financial crisis and the drastic decline in world stock markets has caused policymakers in some countries to question the wisdom of basing retirement security on funded savings. Although this concern is understandable, it is misplaced. An effective retirement policy must focus on the long term—and in the long term there is little question that funded pension systems will outperform PAYGO systems.

This paper has argued that global aging will increase the relative advantage of the funded model. At the macro level, funded pension systems can help to take pressure off government budgets and maintain adequate levels of savings and investment as societies age. At the micro level, they are likely to enjoy a widening rate of return advantage over PAYGO systems that will enable them to deliver adequate retirement benefits at lower contribution rates than PAYGO systems can. To illustrate this crucial point, the paper presented stylized replacement rate projections for Chile, Poland and China which demonstrate that this conclusion holds under most reasonable assumptions about long-term rates of return and real wage growth.

Funded pensions are not the entire solution to the global aging challenge. Every country, and especially developing countries with large informal sectors, will need to create a robust floor of protection, or “social pension,” to protect tomorrow’s elderly against the threat of poverty in old age. The economics of global aging, however, suggest that funded pensions are a necessary part of the solution.



PART III

PROSPECTS FOR POLAND'S AND EUROPEAN PENSION SYSTEMS

CHAPTER VIII. PERSPECTIVES OF POLISH PENSION SYSTEM

CHAPTER IX. MANDATORY PENSION FUNDS IN EUROPE: WHAT'S THEIR FUTURE?



CHAPTER VIII

PERSPECTIVES OF POLISH PENSION SYSTEM

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OPEN PENSION FUNDS IN POLAND, A SNAPSHOT OF NEXT DECADE 2009-2019

TOMASZ BAŃKOWSKI ¹

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KEY FACTORS INFLUENCING PUBLIC OPINION AND SOCIAL UNDERSTANDING OF OFE IN 2009

In our view there are two kinds of factors influencing public opinion and social understanding of Open Pension Funds (OFE by its Polish acronym) in 2009, in Poland. On one hand, there are external factors, which are that what really influence the industry, but that we have no way to change. Those external factors include economical cycles and public trust to financial institutions; public knowledge on financial part of social reform and mass media function; process of legal framing and business stability; and finally, political climate for a more rational and complex shape of OFE.

On the other hand, there are internal factors, which we can influence as industry. They include OFE investments results and risk diversification; safety of collected and located OFE assets; operational efficiency of Pension Fund Companies (PTE by its Polish acronym) and customer care; and last but not least, operational and system costs of OFE/PTE.

ASSESSMENT OF KEY FACTORS FROM PUBLIC AND OFE PERSPECTIVE

If we try to use the colors from traffic lights, we would say that if we summarize those external and internal factors, we will see only a red and a yellow light. Regarding the red light, external factors, independent of the OFE industry, influence negatively on the public opinion and trust; this is the truth after ten years. A partial approach to structuring and the implementation of a social reform makes difficult to expand public understanding of both financial part (the second and third pillars) of the reform and the pension reform.

Concerning the yellow light, internal factors dependent on the OFE industry are less negative. Of course, investment results are criticized due to the current economic situation and also due to unrealistic expectations. Lack of competition between OFEs is also criticized. OFE fees are publicly treated as not justified, as too high; however, what is good, really, is that capital markets as additional but necessary vehicles of pension reform are being progressively being accepted more widely.

OFE TOWARDS IMPROVEMENTS

What can be done, from the OFE point of view, to improve the situation? To improve the public trust? First, portfolios with different risk/profit ratios must be implemented. Second, we have to open for other investment categories and limits allowing better risk control and global risk diversification. Then, there are a number of powers who are convinced that external benchmarks must be set in place of average internal rate of return. Also, we have to reduce the risks of misselling and sunk costs by the rationalization of member transfers. Finally, it is key the implementation of temporary and permanent pension clearing houses within rationale financial frames, as well as searching for better coordination and development between all pillars of the pension system.

FORECASTED RESULTS OF CHANGES IN NEXT DECADE

If we improve the system with the list we have presented, we will also have positive and negative results, as always in such a situation. First, different OFE risk/profit portfolios will split members' opinions and will not raise their level of satisfaction; they will make the system safer, but they will not make people more satisfied. Second, an expanded list of investment categories and a higher foreign risk controlling options will reduce volatility of OFE investment results. Third, external benchmarks will replace the average rate of return, but will open a window for deeper reduction of fees and passive index investing. Four, regulators will limit distribution activity on the OFE secondary market, which will freeze transfer activity. Five, the discussions about the organization and especially the costs of Pension Clearing Houses will not end during the next ten years. Sixth, a better model, in terms of more stable pension pay-outs between non-financial and financial pillars of the pension reform will definitely be proposed in the next years. Seventh and final, the costs of the financial part of pension reform will be reduced due to market concentration and technological progress.

WHAT WILL COME TRUE?

We think that benefits from the financial part of the pension system will overweight the non-financial part, that is to say, the second pillar will overweight the first pillar. Also, the investment process regulation of pension funds will be standardized in the European Union. Finally, OFE operational costs will be seriously downgraded, and public understanding and trust of the individual and financial pension system will be stronger.

OPEN PENSION FUNDS: A PART OF SOCIAL SECURITY IN POLAND

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PRELIMINARY REMARKS

Pension reforms are usually designed or at least perceived in opposition to social security, which is different from what we have done in Poland. Entire new pension system – including open pension funds – remains a part of social security. The new Polish pension system replaced the old one on 1st January 1999 which does not exist anymore.

The social goal of the new system is to provide entire working population with a secure method of income allocation over life-cycle, while social redistribution has been moved out from the system and is provided via the state budget. Commonly used pillar terminology hardly applies to the design of the Polish system that is entirely based on individual accounts of two types, Funded Defined Contribution (FDC) and Notional Defined Contribution (NDC) accounts. This means that a part of the system is directly linked to the real economy (the non-financial part, that is to say NDC accounts); and the other part is linked to the real economy indirectly via financial markets (the financial part, that is to say FDC accounts). Using two types of individual accounts means two channels of income allocation. Both accounts play exactly the same role. Flows of contributions going through the accounts are managed differently, but in the long-run, which is the proper horizon for thinking of the pension system, everything depends on the scale of Gross Domestic Product (GDP). The pension system just determines proportions of division of current GDP between the working and the retired generation.

KEY FEATURES OF THE NEW PENSION SYSTEM

The key feature of the new system, from an economic and social viewpoint, is what I call intergenerational equilibrium, which means that each generation receives as pensions a stable share of GDP over time. In the entire Polish system that holds automatically irrespective of demographic changes. In traditional DB pension systems this share to be stable over time requires political intervention. In times of population ageing politicians do not want and actually even if they tried they would not be able to do the job. In consequence, the share of GDP spent on pensions is quickly increasing at the cost of the

remaining share spent on other than pensions expenditure financed via the budget and eventually remuneration of production factors. In the new Polish system that undesired change of scale of the shares has been stopped and the system is on the way to the intergenerational equilibrium, which in other words means that the welfare of each generation has the same value.

Another feature of the system is the diversification of risk. Contributions go through the two types of individual accounts are differently channeled in the economy. Economic fluctuations affecting the two channels are not fully correlated, so the sum of the two is more stable over time than each of the channels itself. Since this feature is so important the new system was promoted under the slogan, "Security through Diversity." In both accounts long-term average rate of return will converge to the GDP growth rate. Splitting the contribution between the two accounts will not increase account values but it will bring more security into the system.

The third key feature is individualization instead of anonymous participation, which will let people internalize how the pension system operates. Pensions do not come from heaven, are not financed by the government or financial markets. The latter two are just intermediaries, while pensions are financed by ourselves. People do not have a sense of that, because for decades or more, we have all been participating in systems that very efficiently hid that under the table. We did not see that, but now we do see it, and that is the big achievement.

EFFECTS OF THE NEW PENSION SYSTEM IMPLEMENTATION

The first effect is that the system is transparent at both individual and macro level, which is totally different than in the old system.

Second, the system automatically adjusts *ex ante* instead of discretionary adjustment *ex post*, as it was in the traditional version of the pension system. The goal was to reduce pension expectations *ex ante* in order to avoid situations in which people expect more than the system can pay, because what the system can pay is actually given by demography and contributions plus subsidies (both financed by the economically active population). However, population structure is practically given and the burden on the working generation has reached the level that can hardly be increased. Consequently the relative level of pensions as measured by the replacement rate is fully determined. Individual accounts automatically adjust pension expectations *ex-ante*. Using them let avoid inevitable cuts of inflated pension expectations produced by traditional pension systems not employing individual accounts. Adjusting *ex-ante* is feasible. If that is done, then we are on the safe side. If this is not the case, then people will expect more, and they will eventually receive less, which is a disaster from economic, social, and political viewpoints.

Third, pension system debt ceased to increase the ability of the system to serve the debt without a need to increase contributions or taxes.

And fourth, production factors remuneration's growth is not constrained by growing pension expenditure.

COMMON MISUNDERSTANDINGS

There are a number of misunderstandings related to the new Polish pension system. Typically, people think that the goal of the reform was to implement pension funds. Implementation of pension funds was really very important, but not crucial for the reform; the reform was something else. Implementation of pension funds was an important part of the method we applied in order to bring back intergenerational equilibrium. That was the goal, and we used pension funds to achieve that.

The second misunderstanding is that pension societies are private. Pension managers are private in the funded part of the system, but the funds are public, so this is a kind of private/public partnership. The system stays public, which means goals, regulations and supervision are provided by the state but delivering pension services has been contracted out to the private sector. The pension system in Poland has not been partially privatized but running the system has. So the term "private pensions" should not be used with respect to the mandatory pension funds in Poland. They are just privately managed.

Third, the entire new system is based on individual accounts. Both play the same role in income allocation. However, people tend to think that FDC accounts are more "real" than NDC once. The two accounts are equally real from the viewpoint of GDP division, which is the essence of the pension system covering entire population.

Four, the Polish Social Insurance Institution (ZUS, its Polish acronym) plays a role of a pension society that does not use financial markets. ZUS is the same institution that managed the previous system, so it is commonly assumed that the part of the system ZUS manages now is just the previous system. That misunderstanding stems from confusing the institution and the system. These are two different entities.

Many people believe or pretend they believe that pension system generosity depends on political decisions and/or type of pension system. So common conclusion – dangerous for the new system – is that the new system decreases pensions. In fact the new system gives transparent information on future pensions while the previous system provided inflated promises that would not be fulfilled.

CURRENT DISPUTES

There are a lot of disputes over the pension system in Poland now. They mostly focus on pension funds because for politicians and general public it is the most “sexy” part of the system. The disputes are additionally heated by three factors: (1) financial crisis, (2) first benefits payment, (3) tenth anniversary of launching the reform.

Institutional infrastructure of the pension system needs to be developed. However, a large part of debate misses key and urgent issues (for instance investment regulations), while it is focused on many less important or less urgent ones (technical details). Adjusting technicalities is important but in certain cases it may generate (intentionally or not) an additional risk for system fundamentals. It is really the challenge to keep the principles of the system unchanged. Particular risk comes from pressures coming from both: those who think that social goals can be reached only if state institutions are involved (those who never accepted the reform) as well as those who do not care about the social goals (those who wanted totally different reform). Public-private partnership is attacked from both sides.

DIVERSIFICATION OF RISKS

I mentioned that diversification of risks was one of the key features of the new pension system. Now, in these times of crisis, we have very good evidence confirming that the decision to divide the system into two parts (NDC and FDC accounts) was really a very good one.

Economy fluctuates by nature. From time to time a crisis may happen. They can hardly be predicted. It is unlikely to use financial markets in good times and leave them just before a crisis. The split of contributions helps in such situation. For a couple of years rates of return in the FDC part of the system were substantially higher than in the NDC part, while now rates of return in the NDC part are higher. That is to say, now the real economy generates a higher rate of return than the financial part, so the NDC accounts work better. Those reversals will repeat many times in the future.

Does that mean that people should switch from one to another system all the time? No. A more or less 50-50 division of the pension system is a really good device for providing more security to the system. A couple of years ago, many people wanted to have a larger part of their contributions paid into FDC accounts. Now, the same people would like to have a larger part of their contributions paid into NDC accounts. While rational seems to be to have diversified portfolios: NDC plus FDC. The two are the same (income allocation) and different (using or not financial markets) at the same time. That is good for both crises and boom.

CONCLUDING REMARKS

The new pension system in Poland aims at a synergy of financial markets and social policy. Typically, people think that pension funds that we created are somehow an opposite item of the pension system to traditional social security. For me, this is a method of providing social security that is more efficient from the point of view of risk diversification. I would like to have the two understood together, because if we think that they are two different elements, then we start fighting with each other, which is not a very good idea.

If I were asked to tell what the most important challenge for us is at the moment, it is providing people with much more education on how the pension system works, what is the role of each element of the system is, how they should understand results, how they should differentiate between short-term fluctuations and the long-term goals of the pension system. These are things that are not really intuitive. Normal, well educated people but not being pension experts misinterpret many elements of pension system mostly because of applying assumptions that do not fully correspond with the real design of the system. Public education is one of the key elements of the pension reform, and this is something that we still should aim at, and press and push on.

PENSION REFORM IN POLAND IN THE CONTEXT OF WORLDWIDE REFORMS – THE CHALLENGES FOR THE FUTURE

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This short article will review the Polish pension reform, in the context of world trends.

We will look at the evolution of world pension systems through four different fundamental dimensions. The first would be from a non-actuarial system to a fully actuarial system; the second from pay-as-you-go (PAYGO) systems to funded systems; the third from Defined Benefit (DB) systems to Defined Contribution (DC) systems, and finally, the fourth from systems that do not offer any choice for participants to systems that offer a variety of choices to participating members.

Clearly, the Polish pension reform - like almost all reforms in the world - is a movement from one extreme towards a middle ground. Historically, the Polish pension system (pre-reform) was one hundred percent DB, non-actuarial, and a PAYGO system, with virtually no choice for participants.

As a result of the reform, the Polish pension system is somewhere in between the four above mentioned dimensions. We can debate as to how far along we have come; however, what is important is that the title of the Polish pension reform, "Security through Diversity," applies precisely to all those four dimensions.

We feel, considering global experience, that Poland now has a diversified and structurally healthy system. Ongoing discussions on some issues, such as the level of social security contributions, the minimum pension level or the size of the funded pillar, do not affect the structure of the system. They are not material to the success or the lack thereof with respect to the reform.

The key to success is the quality of those four dimensions: the quality of the system's "*actuariality*"; the quality of the funded component; the quality of the DC and DB nature of the system; and the quality of the alternative choices for participants.

There is a very rich and challenging agenda with respect to further improvements in the systems, as well as research and analysis to improve our understanding of the system.

Following are some examples, starting with the quality of “*actuariality*” of the system. First, the right to retire with a pension needs to be ensured in both parts of the system. As long as we do not have a pay-out stage defined from the funded pillar, it is very hard to talk about the meaningful “*actuariality*”. “*Actuariality*” is not important if participants are unaware of what the benefit involves. Another important thing is the correct use of long-term actuarial projections to forecast the system and understand the future. We believe that the creation of something like the “Office of the Chief Actuary” would enable, more meaningful demographics and, consequently, actuarial projections.

With reference to the quality of the funded component, there are obviously many discussions on the agenda, but the most critical is the issue of allowing the choice of a fund that would permit investing in a more conservative portfolio of instruments, especially as retirement age approaches. Other issues, such as reviewing the administrative investment constraints in the class of assets, will certainly be a priority at some point. What will be under discussion much sooner is investing abroad, currently limited to 5% and which should be definitely revised.

When it comes to the quality of the DC and DB nature of the system, we need to understand who really bears the risk in the system. It is a huge simplification to say that in a DB system the risk is borne by the provider of pensions, whereas in a DC system it is borne by the participant. In the life of guarantees, both explicit and implicit, ex ante and ex post, the risk structure is completely different. Whoever seriously looks at the Polish system has difficulty in understanding who actually assumes the risk. Therefore, the main challenges are to work on the risks and guarantees.

Finally, the fourth dimension is the quality of individual choice. At the moment, in the Polish pension system, the participant only makes one choice that of a pension fund in the second pillar. I think it would be highly appropriate to focus on whether this is a meaningful choice. What are the criteria applied by the participants when they make their choices? Given the similarities between pension funds, and given a quite clear herding effect in place, it is actually far from clear that by offering the participants the choice among pension funds; we are offering them an effectual choice. The question is how to deepen this choice, how to make it more meaningful, and how much choice will enter the picture at the pay-out stage. This is another big challenge ahead of us.

Let me conclude by pointing out there is a worldwide trend along the four key dimensions I have mentioned. Poland seems to have advanced to a great extent on each of the four fundamental dimensions regarding the progress of the reform and is benefiting from diversification. We believe the pension reform is an endeavor we need to move ahead on. Two key challenges as we go forward are defining the pay-out stage, and increasing the coverage of the system. By increasing coverage, we also mean extending coverage to farmers, soldiers and police. Extending this benefit to those groups that were not

included initially is a challenge for the future. In fact, we need to have a high coverage in order to capitalize on the benefits of a diversified system like ours. If there are groups that continue having their cozy DB old-fashioned arrangements which in fact subvert the functioning of the system, it does not allow those participants in the new system to be meaningful beneficiaries of this huge reform.



CHAPTER IX

MANDATORY PENSION FUNDS IN EUROPE: WHAT'S THEIR FUTURE?

KLAUS SCHMIDT-HEBBEL. MANDATORY PENSION FUNDS IN EUROPE AND BEYOND:
WHAT IS THEIR FUTURE?

MANDATORY PENSION FUNDS IN EUROPE AND BEYOND: WHAT IS THEIR FUTURE?

KLAUS SCHMIDT-HEBBEL ¹

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The global financial crisis that erupted after the fall of Lehman Brothers in September 2008 is reflected in the worst loss of financial and real estate wealth and the deepest and most protracted global recession in a lifetime. As a result of the meltdown in world equity markets, funded pension plans suffered unprecedented capital losses until early 2009.

Against the background of the latter developments, this paper reviews the future of mandatory pension funds in Europe and beyond. I start with a brief overview of the world recession and the prospects for recovery. In section II, I describe the implications of the financial crisis for private pension funds in Europe and beyond. Then I comment on the lessons for funded pension systems derived from the crisis. It is also important to focus – beyond the crisis – on medium-term challenges for reform of mandatory pension funds in Europe and other industrial countries, which is the subject of section IV. The paper ends with one conclusion.

I. PROSPECTS FOR RECOVERY FROM THE GLOBAL FINANCIAL CRISIS AND RECESSION

The global financial crisis and recession that started in 2008 has been the most serious disruption to world financial markets and the deepest and longest recession since the Great Depression. This so-called Great Recession has been intensified by historically unprecedented levels of international interconnectedness of financial institutions and international integration of goods and capital markets. While globalization has strong benefits for long-term growth, it has the drawback of raising the synchronicity of national business cycles with those of the world economy.

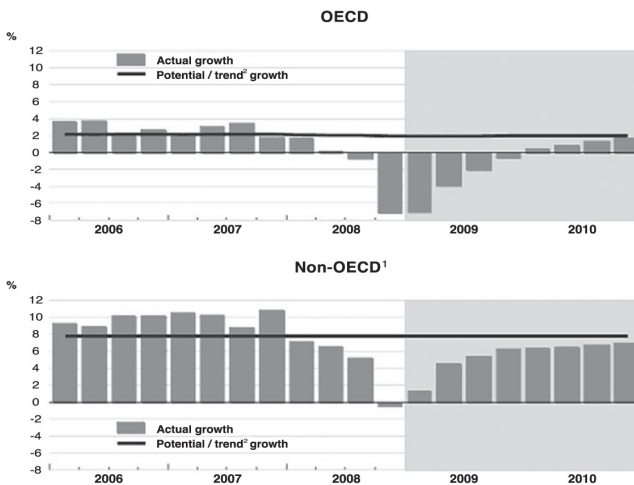
Considering the intensity and depth of this financial crisis in large industrial countries, why is this crisis not a repeat of the Great Depression? Because of the most radical policy response ever witnessed in economic history. Most governments in industrial countries – and many in developing countries, which certainly were not in the eye of the financial hurricane – adopted quickly after September 2008 a consistent, three-legged policy response: (i) large-scale support and rescue of systematically important financial institutions; (ii) massive conventional and unconventional monetary policy easing; and

(iii) massive discretionary fiscal easing, complementing the workings of automatic fiscal stabilizers.

In the light of the latter shock and policy response, I briefly discuss the OECD's March 2009 assessment and projections (OECD 2009a). Figure 1 depicts 2009-2010 quarterly growth projections for the OECD area and four non-OECD countries – the BRICs. Activity in the OECD area is projected to decline throughout 2009, with a gradual recovery of GDP starting in early 2010. The recovery is based on the assumptions that high tensions in financial markets will dissipate towards late 2009, supportive monetary and fiscal policies will be sustained throughout 2009, and average growth in the non-OECD area will pick up in early 2009. OECD-area growth is projected to be less than potential growth through late 2010, implying widening output gaps until the latter date. In the non-OECD area, the pattern of growth is similar – with growth returning to potential towards late 2008 – although average growth is significantly larger, strongly influenced by continuing moderate t-high growth in China and India.

For the first time since the beginning of the OECD as an organization in the early 1960s, a recession – defined as at least two subsequent quarters of negative growth – is likely to be observed in all 30 OECD countries in 2009 (Figure 2).

FIGURE 1
ANNUALIZED GROWTH RATE OF SEASONALLY-ADJUSTED QUARTERLY GDP IN THE
OECD AREA AND SELECTED NON-OECD COUNTRIES (BRICS), 2006-2010



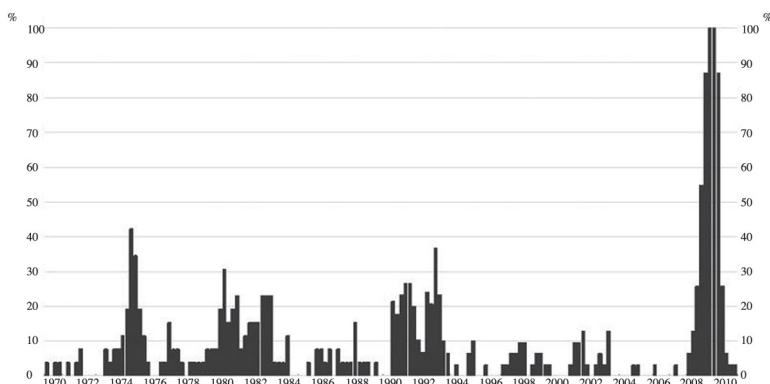
NOTE:

1. THE NON-OECD REGION IS A WEIGHTED AVERAGE, USING 2000 GDP WEIGHTS AND PPPs OF BRAZIL, CHINA, THE RUSSIAN FEDERATION, AND INDIA, WHICH TOGETHER ACCOUNTED FOR ABOUT HALF OF NON-OECD OUTPUT IN 2000.

2. TREND GROWTH FOR THE NON-OECD IS THE AVERAGE OVER THE PERIOD 2000-07.

SOURCE: OECD (2009a).

FIGURE 2
PERCENTAGE OF OECD COUNTRIES WITH AT LEAST 2 QUARTERS OF MORE NEGATIVE QUARTERLY GDP GROWTH, 1970-2010



NOTE: THE LAST HISTORICAL OBSERVATION IS FOR 2008Q4; THE FIRST PROJECTION IS FOR 2009Q1 AND RELIES ON OECD ESTIMATES OF POTENTIAL GDP.
SOURCE: OECD (2009a).

Table 1 presents historical performance measures and projections for key macroeconomic variables for the OECD area. Low growth through 2009-2010 implies a widening output gap and rising unemployment rates, which follow with a time lag the performance of the output gap (Figure 3). The fiscal balance is projected to deteriorate massively due to the working of automatic stabilizers and adoption of large discretionary fiscal expansion programs in most OECD countries. World trade is expected to collapse at a double-digit rate in 2009 – both a result and a magnifying force of the world recession. The latter is reflected in a 2.7% GDP contraction of the world defined as the combined OECD and BRIC areas, which accounts for more than 80% of the world's total GDP.

TABLE 1
MAIN KEY MACROECONOMIC PERFORMANCE INDICATORS IN THE OECD AREA,
2006-2010

	Average 1996-2005	2006	2007	2008	2009	2010	2008 q4	2009 q4	2010 q4
Per cent									
Real GDP growth ¹	2.7	3.1	2.7	0.9	-4.3	-0.1	-1.5	-3.4	1.1
United States	3.2	2.8	2.0	1.1	-4.0	0.0	-0.8	-3.5	1.1
Euro area	2.1	3.0	2.6	0.7	-4.1	-0.3	-1.4	-3.5	0.8
Japan	1.1	2.0	2.4	-0.6	-6.6	-0.5		-4.4	0.4
Output gap ²	-0.2	0.7	1.0	-0.4	-6.5	-8.5	-4.3		
Unemployment rate ³	6.6	6.0	5.6	6.0	8.4	9.9	6.5	9.3	10.1
Fiscal balance ⁴	-2.2	-1.3	-1.4	-3.0	-7.2	-8.7			
<i>Memorandum Items</i>									
World real trade growth	7.0	9.5	6.9	2.5	-13.2	1.5			
World real GDP growth ⁵	3.4	4.3	4.1	2.2	-2.7	1.2			

NOTE:

1. YEAR-ON-YEAR INCREASE. LAST THREE COLUMNS SHOW THE INCREASE OVER A YEAR EARLIER.

2. PER CENT OF POTENTIAL GDP. ESTIMATES OF POTENTIAL HAVE NOT BEEN REVISED AND THEREFORE DO NOT INCORPORATE A POSSIBLE REDUCTION IN SUPPLY IMPLIED BY THE DOWNTURN.

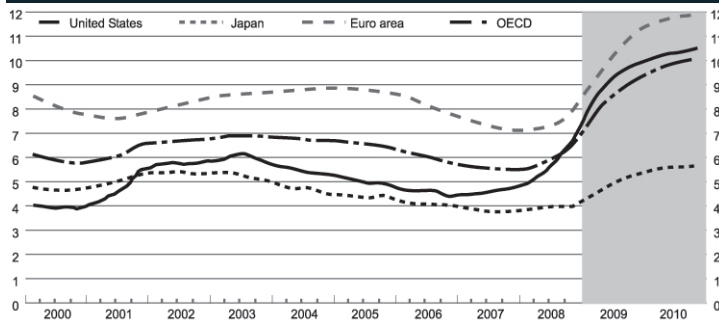
3. PER CENT OF LABOUR FORCE.

4. PER CENT OF GDP.

5. OECD COUNTRIES PLUS BRAZIL, RUSSIA, INDIA AND CHINA ONLY, REPRESENTING 82% OF WORLD GDP AT 2000 PURCHASING POWER PARITIES.

SOURCE: OECD (2009a).

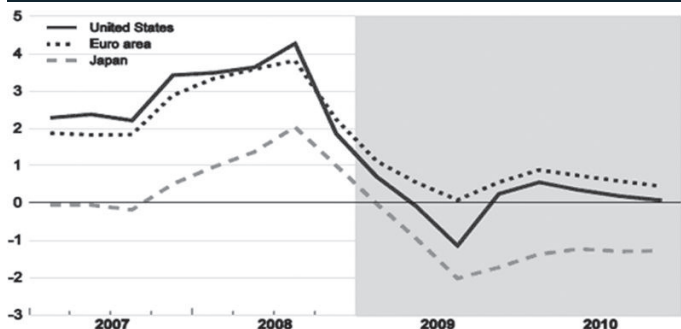
FIGURE 3
QUARTERLY UNEMPLOYMENT RATE IN THE U.S., JAPAN, EURO AREA, AND OECD
AREA, 2000-2010 (%)



SOURCE: OECD (2009a).

Since the last quarter of 2008 world inflation is falling strongly because of the reversal of the commodity price shock, rising unemployment, and weakening economic conditions, which imply very weak cost, wage, and demand pressures on inflation. Therefore inflation is projected towards negative territory in the U.S., Euro area, and Japan around mid-2009, hovering subsequently at low but positive levels in the U.S. and Euro area but remaining at -1% to -2% in Japan (Figure 4).

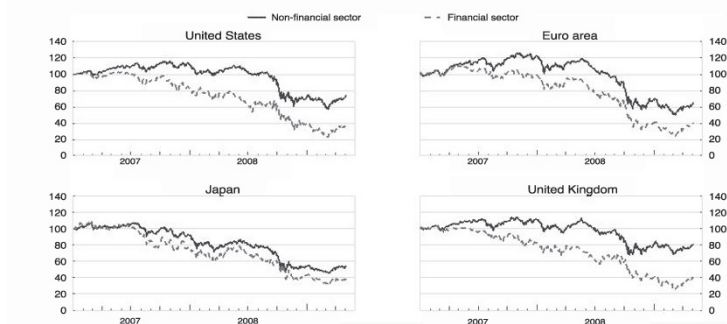
FIGURE 4
12-MONTH CONSUMER INFLATION IN THE OECD AREA, 2007-2010 (%)



NOTE: INFLATION IS BASED ON CONSUMER PRICE INDEX (CPI) FOR JAPAN, PERSONAL CONSUMPTION EXPENDITURES DEFLATOR FOR THE U.S., AND HARMONISED INDEX OF CONSUMER PRICES FOR THE EURO AREA.
SOURCE: OECD (2009a).

World stock prices collapsed after Lehman Brothers and continued declining through early March 2009 (Figure 5). Not surprisingly, equity prices of financial corporations took larger hits than non-financials while the financial crisis unfolded. Since March 2009 stock markets started a significant recovery, which may signal the development of earlier “green shoots” in the real economy than what the OECD March 2009 projections imply. Whatever the precise timing of the recovery, it is likely that it will be slow, due to tight credit conditions imposed by a fragile financial sector.

FIGURE 5
FINANCIAL AND NON-FINANCIAL STOCK PRICE INDICES IN THE U.S., EURO AREA, JAPAN, AND THE U.K., 2007-2009, (1 JANUARY 2007=100)

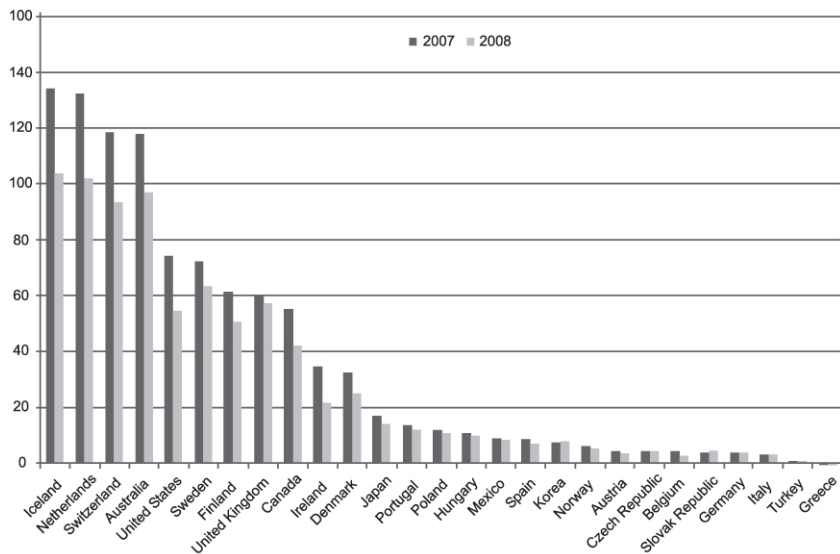


NOTE: LAST OBSERVATION: MAY 4, 2009.
SOURCE: DATASTREAM.

II. THE FINANCIAL CRISIS AND PRIVATE PENSION FUNDS IN EUROPE AND BEYOND

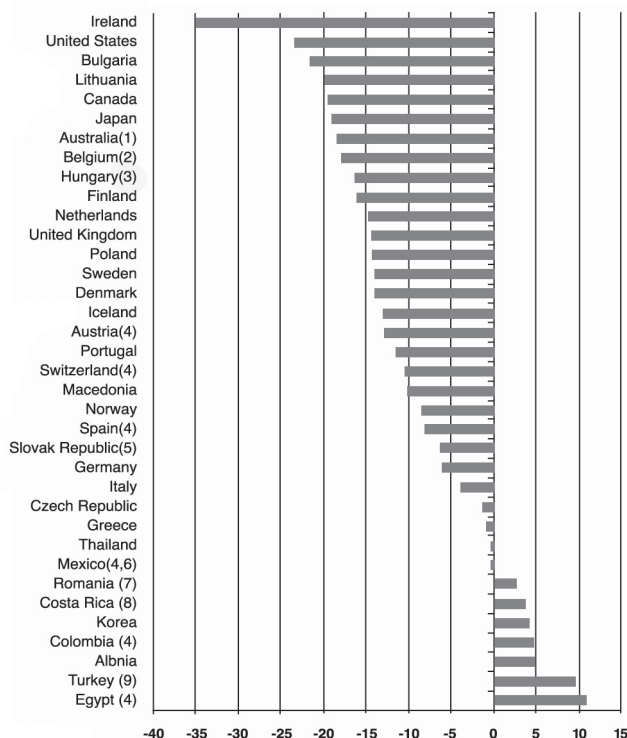
This crisis has implied huge financial losses for individual funded pension plans and funded pension systems in 2008. Outstanding pension fund assets in OECD countries with private pension funds or public funded pension systems have shrunk significantly in most countries (Figure 6). This has been the result of negative nominal domestic-currency returns of pension fund investments, both in OECD and non-OECD countries (Figure 7). Subtracting domestic inflation from nominal returns, we obtain real investment returns for 2008 that range from -5% in Mexico to -40% in Iceland, with a weighted average real return of -23.0% for the OECD area at large (Figure 8). Considering the 2008 losses in world stock markets (Figure 5), it does not come as surprise that there is a strong and significant positive correlation across OECD countries between financial losses of pension funds and the share of equities in pension fund portfolios (Figure 9).

FIGURE 6
OUTSTANDING PENSION FUND ASSETS IN OECD COUNTRIES, 2007-2008 (% OF GDP)



SOURCE: OECD (2009b).

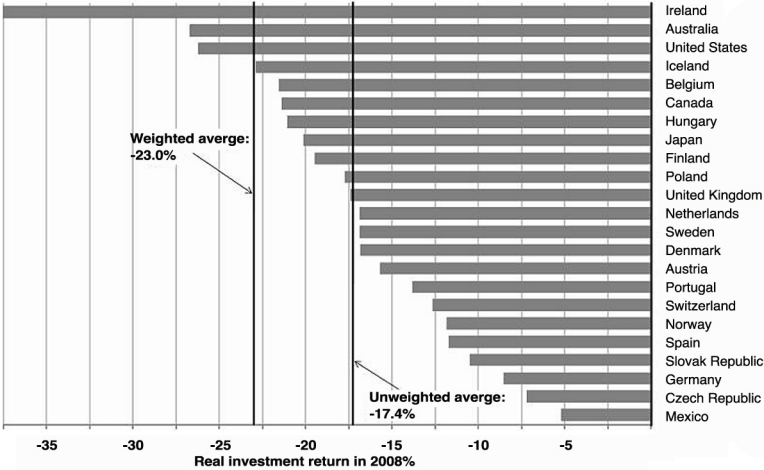
FIGURE 7
NOMINAL INVESTMENT RETURN OF PENSION FUNDS IN OECD AND NON-OECD COUNTRIES, 2008 [%]



NOTES:
[1] OFFICIAL DATA UP TO SEPTEMBER 2008 THEN COMPLEMENTED BY OECD ESTIMATE UP TO DECEMBER; [2] DATA ARE AS OF 30/09/2008 AND REFER TO A SAMPLE OF 60 DB PENSION FUNDS, REPRESENTING END 2007 78.63% OF THE MARKET IN TERMS OF ASSETS; [3] DATA REFER TO DB PLANS ONLY; [4] DATA REFER TO MANDATORY PENSION PLANS, AVERAGE NET NOMINAL INVESTMENT RETURN WAS -7.22% IN 2008 FOR VOLUNTARY PENSION PLANS; [5] GROSS DATA; [6] DATA REFER TO MANDATORY PENSION PLANS, WHILE THE AVERAGE NET NOMINAL INVESTMENT RETURN WAS -1.93% IN 2008 FOR VOLUNTARY PENSION PLANS; [7] DATA REFER TO PERSONAL PENSION PLANS ONLY; [8] DATA REFER TO DC SYSTEM ONLY; AND [9] DATA REFER TO VOLUNTARY PERSONAL PENSION PLANS ONLY.

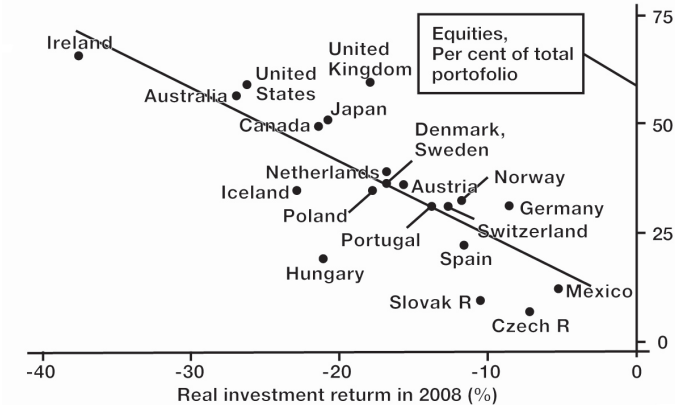
SOURCE: OECD (2009b).

FIGURE 8
REAL INVESTMENT RETURN OF PENSION FUNDS IN OECD COUNTRIES, 2008 (%)



SOURCE: OECD (2009b).

FIGURE 9
REAL INVESTMENT RETURN AND EXPOSURE TO EQUITIES OF PENSION FUNDS IN
OECD COUNTRIES, 2008 (%)



SOURCE: OECD (2009b).

III. LESSONS FROM THE CRISIS FOR FUNDED PENSION SYSTEMS

The double-digit financial losses from the global crisis-cum-recession implied a significant blow to the financial strength and political reputation of funded pension systems worldwide. Therefore funded pension systems and governments face major challenges in addressing their management and design shortcomings, as well as in repairing their political reputation and support. This is valid for FF-DC (fully-funded defined-contributions), FF-DB (fully-funded defined-benefits) and PF-PAYG (partly-funded pay-as-you-go) systems. I start with negative lessons about actions that should be avoided, and consider next positive lessons about actions that should be evaluated and possibly implemented to strengthen funded pension systems.

Negative lessons for FF-DC systems

Which actions would hurt the development of funded pensions funds and the welfare of workers and pensioners, and therefore should be avoided in the short and in the long term? First, during or after the crisis governments should refrain from compensating pension system contributors for their investment losses. Unlike banks, pension funds are not subject to systemic runs. In addition, governments are not able to afford compensation of pension fund contributors. Moreover, compensation would raise moral hazard by encouraging pension fund management to take excessive investment risk in the future. Far better than compensating contributors is letting government minimum guarantees work where they are in place.

The second lesson is avoiding relaxation of pension system conditions for taking early retirement and disability retirement. Western European governments committed the mistake of relaxing conditions for early retirement and disability pensions during the 1970s and 1980s, in response to recession-induced rise in unemployment. Now it is clear that the latter measures caused a significant long-term reduction in the supply of labor, pushing several cohorts of unemployed permanently out of the labor force, reducing growth.

Finally, lowering contribution rates would be a major mistake because it would lead to lower long-time pensions in FF-DC systems and impose losses on FF-DB systems.

Positive lessons for all systems

There are three positive recommendations regarding funded pensions systems to be taken in the short term, that is, during the crisis or shortly after. In FF-DC systems where mandatory annuitization is the only pension option at retirement, it should be relaxed for some time on order to allow for a recovery in asset prices. Temporary phased withdrawal options could be introduced as an alternative pension option for a

transition period. In the case of FF-DB systems, and analogous to the recommendation for FF-DC systems made above, the solvency recovery period should be extended for a temporary period.

Finally, privately managed FF-DC pension pillars should not be downsized by enlarging government managed PAYG-DB pillars, avoiding the route taken by the Slovak Republic (where the FF-DC pillar was downsized) and in a more extreme way by Argentina (where it was abolished). Returning to larger or dominant government-controlled PAYG-DB systems would be a wrong lesson derived from this crisis, in the light of their unsatisfactory long-term performance and negative externalities for fiscal sustainability and economic efficiency.

Beyond the crisis, the following seven areas of reform should be evaluated and eventually implemented.

1. ***Alternative ways should be considered to limit or discourage excessive risk taking by the poor and/or those nearing retirements.*** This could be achieved by the following actions: (i) impose default shift to lower-risk investment portfolios as contributors approach retirement; (ii) complement the preceding action by limiting it to finance a minimum threshold pension level; and (iii) impose mandatory acquisition of a deferred annuity at a threshold age before retirement.
2. ***At the date of retirement, pensioners who choose phased withdrawals could be forced to complement them with a deferred annuity.*** Whether this mandatory requirement should be imposed or not depends very much on other pension design features.
3. ***Improved insurance or subsidies should be extended for low-income contributors to lower the incentives for non-contributory spells in their lives.*** This proposal, like the previous one, has to be evaluated such that it is consistent with other incentives for participation targeted at the young, the women, and the informal sector.
4. ***Programs of financial information for contributors should be extended in systems with investment choices.*** Considering the low levels of financial education of average contributors of pension systems worldwide, this crisis has reinforced the need for raising contributors' ability to exercise informed financial choice. This has the additional benefit of raising trust in and political support of FF-DB systems.
5. ***Risk evaluation and supervisory oversight of pension funds should be strengthened in several directions.*** As in the case of financial supervision, it

is likely that pension fund supervisors have failed in spotting the build-up of investment risks in FF pension funds in the years before the crisis. Strengthening risk-based supervision (including stricter stress testing), broader requirements of financial reporting, and closer coordination with other financial supervisors are on the agenda for improved pension fund supervision.

6. ***Counter-cyclical provisioning and solvency rules should be adopted for FF-DB systems, where the risk is borne by the pension fund.*** As above, this is a lesson learned from this crisis for macro-prudential regulation of financial institutions generally. In FF-DB systems, where the investment risk is borne by pension funds, a macro-prudential rule that requires larger (smaller) provisioning and stricter (less strict) capital rules during asset-price booms (busts) would strengthen their solvency over the full cycles.
7. ***Negative incentives to work longer should be reduced, allowing providing more flexibility to recover from financial losses.*** Many pension systems still tax implicitly income earned by older people (either before or after retirement) heavily. This tax should be reduced significantly, to avoid the disincentive to postponing retirement in order to recover from financial losses suffered during asset-price busts.

IV. CHALLENGES FOR EUROPE'S (AND OTHER INDUSTRIAL COUNTRIES') MANDATORY PENSION SYSTEMS REFORMS

We observe very heterogeneous pension systems and plans in Europe and in industrial countries. However, industrial countries as a group are in a gradual systemic pension transition that takes place in seven dimensions: (i) from DB to DC pension plans; (ii) from occupational to personal plans; (iii) from PAYG to FF systems; (iv) from book-reserve to funded plans; (v) from public to private plans (funds); (vi) from voluntary to mandatory systems (and back); and (vii) from lack of consumer choice to greater exercise of individual choice.

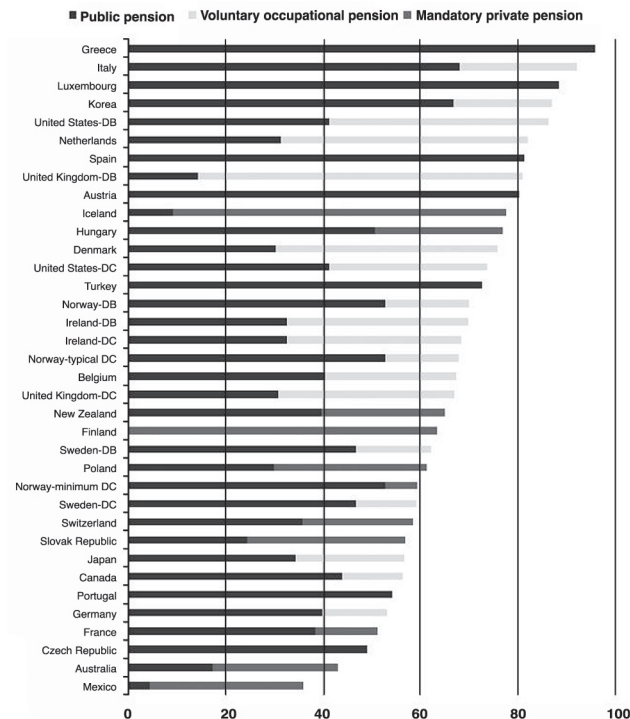
The large heterogeneity of systems across industrial countries is depicted in Figure 10. It reflects large cross-country differences in the relative contribution of the three pension pillars to potential (pension to wage) replacement ratios at normal retirement age in OECD countries. At one extreme is Greece with a potential replacement ratio of 95%, all of which comes from a DB-PAYG public pension plan. At the other extreme is Mexico, with a 37% replacement ratio, most of which (31%) coming from a mandatory private pension plan. This large variation across countries represents a moment in time; undoubtedly it will be very different in a decade from now due to ongoing systemic transition.

The growth of funded pension pillars in industrial countries is reflected by the 2001-2007

trend in aggregate outstanding pension fund assets in the OECD (Figure 11), which rose from US\$ 11 trillion in 2001 to US\$ 18 trillion in 2007. The large losses in equity prices led to a significant reduction of the latter figure in 2008 (the data for 2008 is not available yet), akin to but deeper than that observed in 2002 after the burst of the dotcom bubble and subsequent recession.

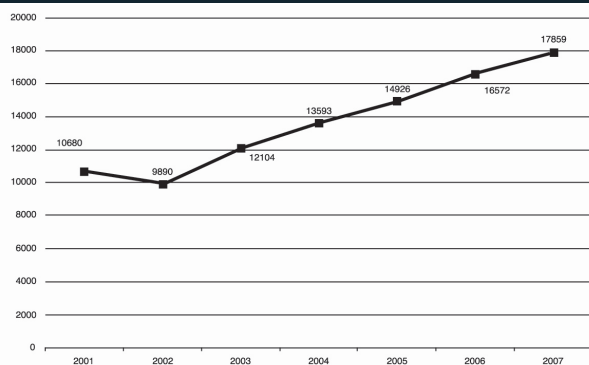
The size of pension funds assets varies strongly across OECD countries, from zero in Greece to 134 % of GDP in Iceland (Figure 12). This large variance in the relative size of private pension funds reflects several factors, starting from the very existence of such funds to demographic and systemic transitions. Figure 12 also reflects that there is much scope for large-scale development of private pension funds in many OECD countries, including Greece, Luxembourg, France, and Turkey, where pension fund assets are at most 1.2% of GDP. Among non-OECD countries a similar wide range of large cross-country differences in the size of pension funds is observed (Figure 13).

FIGURE 10
POTENTIAL REPLACEMENT RATIOS AT NORMAL RETIREMENT AGE IN OECD COUNTRIES, 2007 (% OF FINAL EARNINGS)



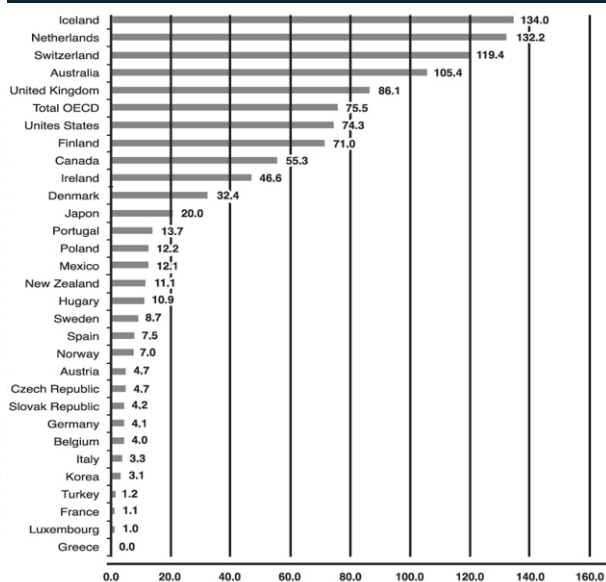
SOURCE: OECD (2009b).

FIGURE 11
OUTSTANDING TOTAL PENSION FUND ASSETS IN OECD COUNTRIES, 2001-2007 (US\$ BILLIONS, AT END OF YEAR)



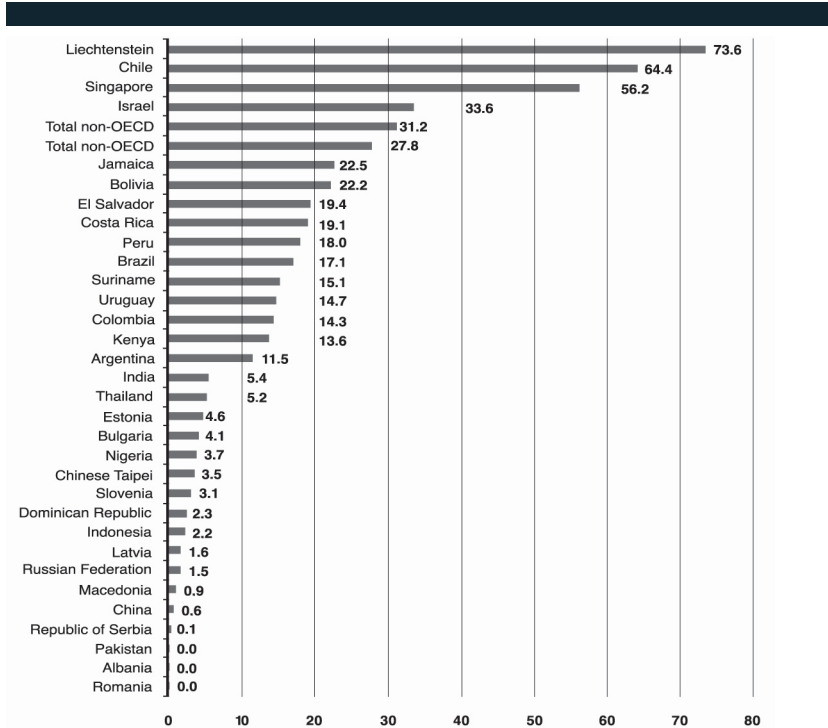
SOURCE: OECD (2009b).

FIGURE 12
PENSION FUND ASSETS IN OECD COUNTRIES, 2007 (% OF GDP)



SOURCE: OECD (2009b).

FIGURE 13
PENSION FUND ASSETS IN SELECTED NON-OECD COUNTRIES, 2007 (% OF GDP)



SOURCE: OECD (2009b).

The speed of systemic transition towards a larger size of funded pension systems is certainly low in both OECD and non-OECD countries. Moreover, from a normative perspective, systemic pension transition is unacceptably slow. Why? Because state-managed PAYG DB systems impose three types of costs on society, in comparison to privately managed FF-DB systems: (i) financial and fiscal unsustainability; (ii) efficiency costs²; and (iii) undesirable intra and inter-generational transfers.

Therefore many countries in Europe and beyond face a fundamental reform challenge: speeding up systemic transition toward a multi-pillar pension system with a mandatory contributory second pillar that should be predominantly or exclusively FF, based on

2 For an estimation of the growth benefits of the Chilean 1981 pension reform, see Corbo and Schmidt-Hebbel (2003).

personal DC pension plans that should be domestically and internationally portable, as well as privately-managed and well-regulated and supervised by a competent authority.

V. CONCLUSION

The most recent OECD report on private pensions (OECD 2009, p. 13) states: "Policies to further develop private pension systems are urgently needed in some OECD countries." I would just replace "some" by "most".

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OECD (2009a): "OECD Economic Outlook: Interim Report". Paris, March.

OECD (2009b): "OECD Private Pensions Outlook 2008". Paris, April.

CLOSING REMARKS

I would like to thank Ewa Lewicka and the Polish Chamber of Pension Funds, IGTE, and also congratulate the members of the International Federation of Pension Fund Administrators, FIAP, for having organized this exceptional seminar.

This Seminar has taken place immediately after a profound worldwide economic crisis. We arrived in Warsaw in the midst of an intense debate that has often derived in mistaken conclusions on the economic crisis and its effects on the pension systems. At the extreme end of these mistaken conclusions is the one that says that the best way to avert the impact of the economic crisis on the pension funds is to once again revert to the PAYGO systems, as if such systems were immune to economic crises.

The individually funded systems are more robust than the PAYGO systems for weathering a crisis of these characteristics. Indeed, the figures on demography and life expectation make it impossible to maintain PAYGO systems, which are based on active workers paying the pensions of passive workers. The consequences of this lack of viability are the parametric changes that the PAYGO systems are implementing in order to carry on being sustainable. Such changes entail huge damages to the participants of the system, damages which I am certain workers and participants in the individually funded systems will not undergo.

Our purpose was to come here to discuss and obtain correct and concrete answers on how to address this crisis and others that may appear in future. A system based on individual funding is certainly exposed to the risk of an economic crisis and its impact on the value of the pension funds. Hence, I believe that on the basis the solidity and pertinence of the presentations we have heard throughout this seminar, we can draw some seemingly important lessons in both the accumulation and decumulation stages.

Regarding the accumulation stage, two lessons are evident from the presentations. The first is that we cannot have only one portfolio. We must have multifunds for workers to be able to choose according to their life cycle. The possibility of choosing between different combinations of fixed and variable income instruments most certainly enables workers to seek out their best risk profile and in this way mitigate the possible effects of a crisis, especially on older members who are close to retirement. Given the inertia phenomenon observed among members, it would probably be necessary to establish an automatic switch-over system from more aggressive to more conservative portfolios as we get older and approach retirement age.

The second conclusion is that there must be considerably more diversification and the regulations must understand this to be so. We cannot have our pension funds captured in fixed income instruments issued by the governments of our countries. In this way we are causing enormous damage not only to the profitability of the funds, but also to the safety they should have for participants. Therefore, having concluded that broad diversification between fixed and variable income instruments, and certainly investment abroad, are necessary, we should seek the regulatory changes that will make it possible. Fixed income instruments should also be protected against inflation, especially those that are long term and used for financing pensions.

The decumulation stage gives rise to a second risk, different to the financial risk or the risk associated to financial crises, namely longevity risk. For many, living longer is a blessing, but undoubtedly from the pension standpoint it is a risk we are obligated to address. I believe that from the discussion that took place here it is clear that even though life annuities appear to be the pension mode most suitable for a social security system, the possibility of a programmed retirement mode should by no means be abandoned, at least for some time. In life annuity we transfer the survival and profitability risks to an insurance company, whereas in programmed retirement the participants themselves

assume both risks. Nonetheless, I think that individuals who think they are below the average or below the life expectancy tables designed for such cases, or individuals who have another source of income during retirement, must keep open the option of programmed retirement of the funds they have accumulated during their active lives. Therefore, I believe that both options must necessarily remain open and probably some combination between both of them such as buying a life annuity during the active stage, having variable life annuities or other combinations of both modes. In order to strengthen the life annuity market, I think it is also important to transfer the disability and survival insurance, which in some cases remains inside the public system, to the insurance companies.

Finally, I think our challenge does not end with obtaining these regulatory changes and studying them with the regulators. I think there is a challenge that has been insistently mentioned: pension education. If one looks at the available studies and the public opinion studies on pension systems, the more people understand the functioning of the pension system, the more they trust it and the better opinion they have of it. Therefore, it is a challenge to try and generate this confidence through better communication and better education of all the participants in the system. The participants, the workers, make monthly contributions for a benefit they will obtain in many years more. Hence, trusting this activity plays a key role: that the worker perceives the value of obtaining a pension at the end of his working life.

In order to achieve the foregoing, we have to create this confidence through education. Unfortunately, and curiously enough, we do not usually have the cooperation of our governments for doing this. This is the social security system of countries and as such it is part of the public policy of governments, but it appears that the fact that it is managed by private companies is not conducive to decided government support. Thus, I think we have the task of convincing regulators and governments of the idea of protecting these systems. These are the systems of the future, so the confidence needed for improving coverage and improving the saving discipline of workers must be instilled in order to achieve better pensions.

These systems also have the peculiarity, compared to the PAYGO systems, that each worker owns his funds. Hence, using the Argentine case as an example, I think the confidence each individual has with regard to his funds is much greater than it was in a system in which one contributed against a promise

which, to be honest, rarely materialized as promised.

Due to all the foregoing, I am certain that this system will weather this crisis very successfully, as it has weathered others in the past. However, I think it is important to bear in mind the lessons we have discussed here. I think that the presentations and their robustness will help us to have these conclusions adopted by all our countries and thus be able to continue developing a system that we are sure will benefit workers and the economies of our countries.

Thank you very much; I hope to see you in a year from now, probably in some country of our Latin America. And thanks once again to IGTE for this marvelous reception in Warsaw.

Guillermo Arthur
FIAP President

EARLIER FIAP PUBLICATIONS

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 seven 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* (Seminar held in Lima, Peru, December 2002)^{1 2}**

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.

***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

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.

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 role in 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.

For your information, these publications are available in an electronic version on the FIAP website, <<http://www.fiap.cl>>, in the "FIAP Publications" section. Copies of these publications may be obtained writing to e-mail: <fiap@fiap.cl>.

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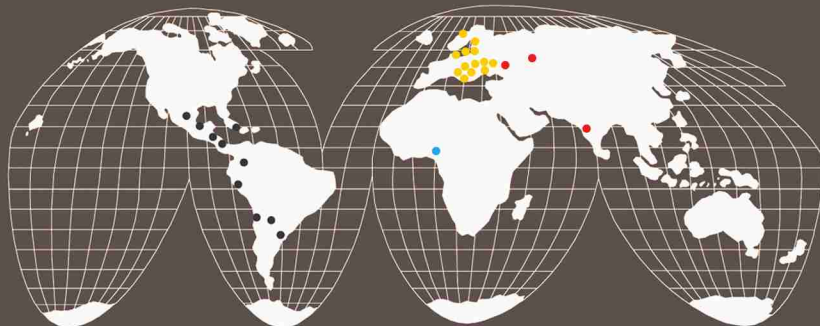
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COUNTRIES WITH REFORMS (1)



● LATIN AMERICA

● CENTRAL AND EASTERN EUROPE

● ASIA

● AFRICA

Chile	1981	Hungary	1998	Kazakhstan	1998	Nigeria	2005
Peru	1993	Poland	1999	India(*)	2004		
Colombia	1994	Sweden	1999	Armenia(***)			
Uruguay	1996	Latvia	2001				
Bolivia	1997	Bulgaria	2002				
Mexico	1997	Croatia	2002				
Salvador	1998	Estonia	2002				
Costa Rica	2000	Kosovo	2002				
Panama (*)	2002	Russian Fed.	2003				
Dominican Rep.	2003	Lithuania	2004				
		Slovak Rep.	2005				
		Macedonia	2006				
		Romania	2008				
		Ukraine(**)					

The year given correspond in each case to the beginning of operations of the mandatory funded pension system.

(1) Information updated on April 30, 2009.

(*) Reform for civil servants.

(**) Approved reform, not yet implemented.

(***) Proposed reform, not yet approved or implemented.



INTERNATIONAL
FEDERATION OF PENSION
FUND ADMINISTRATORS

