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ABSTRACT/RÉSUMÉ

Description of Private Pension Systems

The role of private pensions in the provision of retirement income has grown significantly in the past two decades, reflecting efforts by many countries to trim down unsustainable pay-as-you-go benefits. The role of private provision of retirement income is visible in countries with mature defined benefit private pension plans, as well as in countries that have introduced a mandatory private pillar as part of a systemic pension reform. This report seeks to develop a comparative study on the regulation of private pension systems across a range of countries, with a particular focus on the major systems in Latin America and the Caribbean, and Central and Eastern Europe, as well as selected high income OECD countries. It contains individual country profiles that provide detailed information on each country's private pension system. Each country report includes information on members' participation; contribution rates, asset management, investment regulations, asset valuation and investment return regulations.

JEL codes: G23; G28

Keywords: Pension funds; pension plans; pension system, defined benefit; defined contribution; contribution rate, investment regulation; investment return, asset valuation

Description des systèmes de pension privés

Le rôle des pensions privées comme source de revenu au moment de la retraite s'est beaucoup accru au cours des deux dernières décennies, reflétant en cela les efforts déployés par de nombreux pays pour réduire des prestations financièrement non tenables dans le cadre de la répartition. Le rôle des pensions privées à cet égard est visible tant dans les pays à plans de pension privés à prestations définies matures que dans les pays qui se sont dotés d'un pilier privé obligatoire dans le cadre d'une réforme systémique des pensions. Dans ce rapport, on tente de présenter une étude comparative de la réglementation des systèmes de pension privés dans différents pays, en particulier concernant les grands systèmes d'Amérique latine et des Caraïbes, ainsi que l'Europe centrale et orientale et un certain nombre de pays de l'OCDE à haut revenu. Le rapport présente des profils par pays qui donnent des informations détaillées sur le système des pensions privées dans chaque pays. Chaque rapport par pays fournit des informations sur le nombre des adhérents, les taux de cotisation, la gestion des actifs, la réglementation des investissements, la valorisation des actifs et les règles en matière de rendement.

Classification JEL : G23, G28

Mots clés : fonds de pension ; plans de pension ; système de pension ; prestations définies ; cotisations définies ; taux de cotisation ; réglementation des investissements ; rendement des investissements ; valorisation des actifs

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DESCRIPTION OF PRIVATE PENSION SYSTEMS

by Waldo Tapia¹

I. LATIN AMERICAN COUNTRIES

ARGENTINA

Introduction

The Argentine parliament approved a new pension system, the Integrated System of Retirement and Pensions (Sistema Integrado de Jubilaciones y Pensiones, SIJP) in 1994. It replaced the existing *pay-as-you-go* (PAYG) system with a mandatory mixed contributory system.

Type of system

The Integrated System of Retirement and Pensions is made up of a basic publicly managed pension system (Universal Basic Benefit, PBU) and a mandatory mixed contributory system. The PBU is a non-contributory system managed by the National Social Security Administration (ANSeS). It provides a non-earning related benefits, which is a monthly flat amount of approximately 28% of average wages, that can be claimed by any worker with 30 years of contributions who reach age 65 (for men) and 60 (for women).

The mandatory mixed contributory system comprises two alternatives schemes: a new PAYG government-run scheme and a privately managed fully-funded scheme based on defined contribution individual accounts. The public scheme is managed by the National Social Security Administration (ANSeS) and the private scheme by private pension fund managing companies (Administradora de Fondos de Jubilación y Pensión, AFJPs).

Participation in the system

Enrolment in the SIJP is mandatory for both employees and self-employed. When they enter the labour force they are automatically enrolled in the PBU, and, additionally, they must choose between the publicly managed PAYG system and the private system for their earnings-related pension. Employees and self-employed could also contribute into voluntary complementary pension plans.

Under the contributory mixed pension system, workers cannot participate in both the new PAYG government-run system and the private system simultaneously. Members choosing the PAYG system

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can switch to the funded system at any time. However, those who chose the private scheme cannot switch to the PAYG system. The default option is to be placed in the private scheme.

Contributions

Both employees and employers contribute to the SIJP. Employees who chose to enrol in the funded system paid a total contribution of 7% of their monthly gross salary (original employee contribution imposed by law was 11%), of which 4,481% goes into their individual account, 1,269% to the insurance company and 1,250% to the AFJP to cover the administrator's commission. The employer contribution, on the other hand, varies between 10.17% or 12.71% of the employee's monthly gross salary (original employer contribution imposed by law was 16%). It finances entirely the cost of the new PAYG government-run system. Employees and employers enrolled in the private system can also make additional contributions to the individual accounts.

The contribution rate for the PAYG system is 27% of the employee's taxable income, of which 11% is paid by the employee and 16% by the employer.

Self-employed workers contribute both the employee and employer contribution totalling 27% (they still pay the original rate of member's contribution of 11%) according to a fixed income reference scale determined by the state. The employee element is paid to the system chosen by the self-employed person.

Asset managers

Individual accounts in the funded system are managed by private pension fund managing companies (AFJPs). These companies are strictly regulated by the Superintendency of Pension Fund Management Companies (SAFJP). AFJPs were solely created for investing employees' contributions and for administering payments to retirees. Each AFJP administers one fund, which is a defined contribution fund, and the assets that are accumulated in individual accounts are the exclusive property of each respective affiliate member. AFJPs must keep the pension fund's assets separate from their own assets.

There is a financial institution wholly owned by the State, Banco de la Nacion that participates as a pension fund managing company providing a guaranteed minimum rate of return equal to the interest rate earned in savings accounts. Private AFJPs, on the contrary, are not allowed to offer this kind of minimum guarantee.

Investment regulation

AFJPs are allowed to invest in a variety of financial instruments, such as government bonds, mutual funds, corporate stocks, and derivatives. However, investment is subject to quantitative limits per instrument, per issuer and per risk rating levels. There are also investment limits on type of assets. They cannot invest on equities issued by other AFJPs, insurance companies, investment fund management companies and rating agencies. Moreover, investment in foreign assets is currently limited to corporate or foreign government securities.

The AFJPs may invest pension fund assets in the categories listed below (see Table 1). There is a maximum limit for each category, defined as a percentage of total assets. These maximum limits have changed over time.

Table 1: Investment regulation in the privately managed pension system: Argentina

Asset category	1994	2002
Bonds issued by the national government	50%	50%
Bonds issued by provincial and local governments	5%	30%
Commercial papers, long term	28%	40%
Commercial papers, short term	14%	20%
Convertible commercial papers	28%	40%
Convertible commercial papers, issued by privatized companies	14%	20%
Certificates of deposits	28%	30%
Equity	35%	50%
Recently privatized companies equity	14%	20%
Mutual funds	14%	20%
Foreign government bonds	10%	10%
Foreign commercial papers	7%	10%
Options and futures	2%	10%
Securities with mortgage warranty	28%	40%
Direct investment funds	10%	10%

AFJPs cannot invest in other AFJPs, insurance companies and rating agencies or in assets issued or guaranteed by the same economic group to which they belong. Assets in which AFJPs may invest must have a minimum risk qualification issued by the Central Bank or authorized rating agencies. Additionally, each AFJP must hold liquid reserves of 1% of the pension fund balance and must not in any case be less than ARS 1.5 millions.

Minimum rate of return regulation

In order to ensure an appropriate combination of high yield and low risk in their investments, all AFJPs are required to guarantee a minimum return equivalent to the average for the industry minus 30% or two percentage points, whichever is smaller. Symmetrically, if returns of any fund exceed the industry average plus 30% or two percentage points, the share value has to be reduced to this maximum level and the excess is credited to a special account that serves as a profit reserve. When in any given 12-month period, a fund's return is below the minimum guaranteed, the AFJP must compensate the affiliates, transferring assets from the profit reserve and, if necessary, from an investment reserve². If both reserves are exhausted and compensation is still due, the government must pay the difference, take over the administration of the fund and withdraw the license to the AFJP.

Asset valuation

The regulator SAFJP makes a daily valuation of all instruments, according to their economic or market value. However, certain public bonds which are kept until maturity in the portfolios in order to reduce the volatility of the fund are subject to a different valuation. For calculating the daily price of these bonds, the SAFJP takes into account the purchase price, the depreciation of capital and the interest accrued since the issue date.

² Each AFJP must hold liquid reserves of 1% of the pension fund balance.

Debt instruments and floating rate notes are valued daily according to their market value at the relevant markets. For securities issued in foreign currency, the relevant rate in order to estimate the present value of the future flows is the free risk rate at the authorized market. For securities issued in domestic currency the relevant rate will be the domestic rate of return at the time of carrying out the calculation. Finally, equities are valued daily on the basis of the registered daily price at the corresponding relevant market.

The SAFJP establishes, every six months, the relevant markets for each instrument, according to the number of transactions in 70% of the working days. Therefore, the relevant markets for public or private instruments are the market with the highest number of transactions in terms of nominal value.

Investment returns

In order to calculate the investment return, pension funds are divided into shares or quotas of equal value and characteristics. The quota is a unit of measurement defined by each administrator. Changes in the value of this unit reflect the yield on pension assets. The value of the quotas is calculated daily, based on the market value of assets.

The investment returns on the pension funds are calculated monthly on a regular basis, as the ratio of the adjusted average quota value of the system³ ($ICAPS_t$) in a given month to the adjusted average quota value of the system twelve months before.

The adjusted average quota value of the system, $ICAPS_t$, is determined for a calendar month as the sum of the unit values for each day, divided by the number of days in that month.

$$ICAPS_t = \sum_i^m \frac{ICAS_i}{m},$$

Where $ICAS_i$ is the adjusted average quota value of the system in day i , and m is the number of working days during the month t .

There are two indicators of investment return: the nominal return of the last 12 months for each month t (NRM_t), and annualized nominal return since the beginning of the system, at each month t (NR_t).

$$NRM_t = \left[\frac{ICAPS_t}{ICAPS_{t-12}} - 1 \right] * 100$$

$$NR_t = \left[\left(\frac{ICAPS_t}{ICAPS_0} \right)^{\frac{12}{n}} - 1 \right] * 100$$

Where $ICAPS_{t-12}$ is the adjusted average quota value of the system 12 months earlier and $ICAPS_0$ is the adjusted average quota value of the system at month 0 (beginning of the system). n is the number of months since the beginning of the system

³ Índice de valor cuota ajustado promedio del sistema.

BOLIVIA

Introduction

The Bolivian Government enacted a pension reform law that modified fundamentally the country's pension system at the end of 1996. This reform closed the old *pay-as-you go* (PAYG) pension system and created a mandatory private pension system (Seguro Social Obligatorio, SSO) as well as an old age social assistance program (BONOSOL). The new system came to effect in May 1997.

The Bolivian pension reform followed the substitutive model, where all contributors to the old PAYG system, with no exceptions, were automatically transferred to the new mandatory private pension system, while those already retired under the old system continued to receive their pensions from the government.

Type of system

The new pension system is based on a non-contributory publicly managed social security system and a mandatory private pension system. The mandatory private pension system is fully-funded, based on contributions to individual accounts in pension funds, which are managed by specialized pension fund management companies (Administradora de Fondos de Pensiones, AFPs). It is regulated and supervised by the Superintendence of Pensions, Securities and Insurances.

The pension reform also established a universal social program (BONOSOL) designed to provide a universal old age income support to all Bolivians 65 and older. Under this scheme the six principal state-owned enterprises were capitalized by foreign companies, and the Bolivian government retained 50% of the assets in the capitalized companies. These assets are held in a Collective Capitalization Fund (Fondo de Capitalizacion Colectiva, FCC), which are invested and managed by the AFPs, and their dividends are used to finance the BONOSOL program.

Participation in the system

Participation is mandatory for all employees, whether they participated in the old system or not. All contributors to the old pension system were automatically transferred to the funded system. Finally, self-employed earning at least the minimum wage can also participate in the new system on a voluntary basis. Persons who do not have an employment relationship may affiliate to the mandatory private pension system on payment their first contribution

Contribution

Employees contribute 12.21% of their gross salary between the minimum national salary of BOB 440 (in 2005) and the maximum level of 60 times the minimum national salary. 10% goes to the individual account, 1.71% is used to cover the insurance premium for common risk and 0.5% to finance the administration costs of the AFPs.

Self-employed persons may voluntarily contribute 12.21% of their declared income between the minimum national salary of BOB 440 (in 2005) and the maximum level of 60 times the minimum national salary. 10% goes to the individual account, 1.71% is used to cover the insurance premium for common risk and 0.5% to finance the administration costs of the AFPs.

Participants of the funded system may also pay voluntary contributions to their individual accounts in order to increase the balance in the individual account or increase the amount of the pension benefit.

Asset managers

Because of the small size of the country, the pension regulation establishes that for the first five years the individual capitalization accounts will be managed exclusively by two private pension fund management companies or AFPs, which were selected through an international bidding process for the lowest service fee. The idea behind this decision was to reduce administrative costs while at the same time making the business attractive for foreign investors. The exclusive period ended in May 2002, however, currently there are not any new AFPs.

The two AFPs divide the country in half geographically, except in the main cities, where affiliates are assigned according to their date of birth. Since January 2000, participants have been permitted to switch AFPs if they have made 12 contributions, changed jobs, or moved, or if fees or insurance premiums are increased. Members cannot choose to transfer to another AFP searching for better return.

AFPs manage two types of funds: Individual Capitalization Fund (FCI) and the Collective Capitalization Fund (FCC). AFPs must keep the pension funds' assets separate from their own resources. Asset management cannot be contracted to external asset managers.

Investment regulation

AFPs can only invest in securities that are explicitly authorized by law (see Table 2). These include bonds and shares issued by local and foreign government and companies. Additionally, there are quantitative limits by issuer, risk level, liquidity of instrument and by group of instruments. Securities issued by the Bolivian Treasury and the Bolivian Central Bank are not subject to limits. Investment limits have not changed much since the inception of the system. The investment of the FCIs is subject to the following upper limits:

Table 2: Investment regulation in the privately managed pension system: Bolivia

Asset category	1997-2004
Treasury bonds and other government financial instruments	No limits
Securities issued by provincial and local governments	Between 0% and 10%
Long-term securities issued by domestic banks	Between 30% and 50%
Short-term securities issued by domestic banks	Between 20% and 40%
Mortgages bonds issued by domestic banks	Between 30% and 50%
Domestic mutual funds	Between 5% and 15%
Domestic equities	Between 20% and 40%
Bonds issued by domestic private corporations	Between 30% and 45%
Foreign instruments (government and corporate bonds, equities, and others)	Between 10% and 50%
Debt instruments whose underlying assets are guaranteed by a mortgage portfolio	Between 20% and 30%

Investment regulations also include a maximum individual limit by a single issuer in domestic bonds of 10% of the total value of the pension fund times the weighed average risk factor⁴ and 40% of securities of the same issue or series (ownership concentration); a maximum individual limit by issuer in equities of 5% of the total value of the pension fund; and a maximum individual limit by issuer in investment funds of 3% of the total value of the pension fund.

Minimum rate of return regulation

There is no minimum rate of return guaranteed by the pension fund management companies.

Asset valuation

In December of 1997, the first regulation on asset valuation established that the investments of pension funds are valued according to their market value. Later, in 1999, as a result of the creation of the Superintendency of Pensions, Insurance and Securities, a Unique Norm of Valuation was enacted. This norm regulates the valuation of pension funds investments for all institutions overseen by the Superintendency. The instruments that are eligible for the pension funds may be divided into three groups: fixed income instruments, variable income securities and foreign securities. This classification is denominated Valuation Code.

Fixed income instruments

Fixed income instruments are valued daily according to their market value using the weighted average rate the valid transactions in instruments belonging to a same Valuation Code. Thus, if one or more fixed income instruments assigned to the same Valuation Code are negotiated in a specific day, and the total amount of transactions surpasses the minimum amount established by the Valuation Code; all the instruments of that same Valuation Code will be valued using the same weighed average rate.

If one particular day there is no transactions of any instruments of a same Valuation Code, or total amount of transactions do not surpasses the minimum amount established by the Valuation Code, the valuation price of that day will be based using the relevant return rate⁵ up to 60 days since the date of calculation.

Variable income securities

Domestic equities negotiated in primary or secondary markets are valued daily according to the market average weighed price of valid transactions for that day. When there are no valid transactions in a particular day of any instruments belonging to the same Valuation Code, the valuation price will take into account the most recent price between the last market price and the quarterly proportional wealth value⁶ (valor patrimonial proporcional).

⁴ The weighed average risk factor is obtained by adding the product of the risk factor corresponding to each instrument (domestic bonds) and the proportion represented by the amount of the fund invested in each instrument.

⁵ The relevant rate of return is calculated according to the *economic term* of the instruments. The economic term is obtained to weight the terms of each payment (coupons and/or payments to capital) by the proportion of the present value of each of the flows with respect to the present value of the value of the instrument to the date of valuation.

⁶ The proportional wealth value is calculated using the formula: [(net wealth-net worth)/ no. of ordinary equities]

Asset valuation of domestic participation quotas of closed-end funds is based on the daily average weighted market price of transactions carried out in domestic formal secondary markets. This price will be valid for a maximum of 30 days. When there are no transactions of any instruments of a same Valuation Code during the last 30 days, the valuation price will take into account the quota book value of the fund of the previous day.

Debt instruments issued through securitization process and traded in domestic formal secondary markets are valued according to the market average weighed price for that day. This price will be valid for a maximum of 30 days.

Foreign securities

There are two different methods of valuation in use for foreign fixed income securities. They depend on the existence of transactions and the amount traded. First, certificates of deposits are valued using the weighed average internal rate of return of transactions carried in a particular day. Foreign debt instruments issued interest bearing bonds or zero coupon bonds will be valued using the market internal rate of return obtained from the authorized agencies. If the internal rate of return could not be obtained from the authorized agencies, bonds with dividends or zero bonds will be valued using the market internal rate of return of the previous day. Second, certificates of deposits with no transactions in a particular day will be valued using the internal rate of return of the previous day.

Foreign equities, quotas of closed-end funds and quotas of open-end funds are valued daily using the closing price for that day of valid transactions, obtained from authorized agencies. Future and options are valued daily according to the closing price available for that date, obtained from authorized agencies.

Investment return

The investment return of the pension funds is calculated using the existing value of the quota at the beginning and at the end of the period. In the rest of Latin American countries, the calculation uses the average value of the quota during the period⁷.

The quota is a unit of measurement, and it expresses the value of the pension funds in units of equal amount and characteristics. Its value rises or falls according to the economic or market value of the investments. The annualized variation in the value of the quota reflects the nominal return of the quota (NR_{t-r}). Subsequently, this indicator is deflated by the consumer price index, in order to obtain the real return of the quota (RR_{t-r})

$$NR_{t-r} = \left[\left(\frac{QFCI_t - QFCI_r}{QFCI_r} \right) * \frac{360}{t-r} \right], \text{ and} \quad RR_{t-r} = \left[\left(\frac{1 + NR_{t-r}}{1 + \Delta\% CPI_{t-r}} \right) - 1 \right]$$

Where $QFCI_t$ is the value of the quota of the pension funds in t (beginning of the period) and $QFCI_r$ is the value of the quota of the pension funds in r (end of the period), and r is higher than t .

⁷ The value of the quota is measured in domestic currency (Bolivianos). However, pension fund assets are invested in foreign currency (US dollars). As Bolivian economy is functioning with American dollars, the reference to economics agents is the interest of foreign currency

$t-r$ are the days between t and r . CPI_{t-r} is the consumer price index during the period $t-r$ (in absolute terms).

BRAZIL

Date of enactment

Privately managed pension funds formally began to exist in 1977, when the legislation allowed for the constitution of “complementary pension plans”. The basic idea behind this regulation was to promote a smooth shift from a public *pay-as you-go* (PAYG) system to a fully-funded private pension system.

Type of system

The Brazilian pension system is structured in three components. The first one is the General Regime of Social Security (Regime General de Previdência Social - RGPS). It is a public, mandatory, PAYG system, managed by the National Social Insurance Institute (INSS). The second component is the pension system for government workers (Regimes Próprios de Previdência Social - RPPS), which is managed by the federal government, states and municipalities with specific financing rules. These regimes are mostly PAYG.

The third component is a complementary pension system (Regime de Previdência Complementar – RPC). This system includes funded occupational and personal pension plans privately managed by closed entities (Entidades Fechadas de Previdência Complementar – EFPC) and open entities (Entidades Abertas de Previdência Complementar – EAPC). Open and closed plans are organized as either, defined benefit plans, defined contribution plans or hybrid plans.

Participation in the system

Single or a group of, employers may, on a voluntary basis, establish a complementary plan for their employees. Enrolment in closed plans is restricted to the covered employees of the sponsoring employer. Closed plans must have at least 100 members. Employees’ participation in the plan is voluntary for covered employees. Closed plans must be implemented through the establishment of closed pension entity. The establishment of a closed pension entity is subject to the approval of the Secretariat of Complementary Pensions (*Secretaria de Previdência Complementar* - SPC).

Single, or a group of, employers may through a group contract affiliate their employees to an open pension plan established and offered by open pension entities or life insurance companies. The establishment of an open plan is subject to the approval of the Insurance Superintendence (*Superintendencia de Seguros Privados* - SUSEP).

Contributions

Defined contribution plans are usually contributory. The contribution rate depends on plan rules and is typically vary between 4% and 6% of the part of the salary below the social security ceiling and between 8% and 10% of the part of the salary above that ceiling. Defined benefit plans are contributory and the contribution rate depends on plan rules.

Asset managers

Closed entities may manage the assets in-house or contract the asset management out to an asset manager (usually a bank). There is no requirement for asset managers to be authorized or licensed. Open pension entities or life insurance companies manage the assets in-house.

Closed entities are private, non-profit organizations set up for the sole purpose of implementing and managing closed pension plans. They are established by single employers, multiple employers and recently by labour unions or professional associations. The pension funds' assets are legally segregated from the sponsors' and submitted to specific accounting, financing and actuarial regulations. The closed entities are supervised by Secretariat of Complementary Pensions.

Open entities may be operated by insurance companies, bank's subsidiaries and non-profitable organizations and offer pension plans to employees, employers, self employed and non-employed. They can be contracted out by enterprises or, more commonly, contracted directly by individuals. They are set up as limited companies with the single business aim of establishing and managing open pension schemes. The supervision of open entities is under the competence of the Superintendence of Private Insurance (Superintência de Seguros Privados, SUSEP),

Investment regulation

According to the Regulation of The National Monetary Council, issued in September 2003, closed pension entities have no limits to allocate resources in government bonds. Nonetheless, the aggregated investment in low credit risk bonds issued by states and municipalities, financial and non-financial institutions and in savings accounts and low credit risk mutual funds shares is limited to 80% of the total assets allocation. In case these financial instruments are classified as medium or high-level credit risk, the maximum limit for asset allocation would decrease to 20% (30% in the case of defined contribution plans).

Limits for investment in equities issued by companies listed on the Brazilian stock market (*Bovespa*) differ depending on the degree of their compliance with good corporate governance standards defined by the stock market. The investment in listed stocks is limited to 50% of the portfolio for companies with good corporate governance rating; 45% for companies with regular governance rating and 35% for non-classified companies. The limit for private equity investment is 20%. The Brazilian stock market is in charge to calculate the corporate governance rating. Foreign investment is limited to 10% and restricted to Brazilian Depositary Receipts (BDRs) and stocks listed in the MERCOSUR's capital markets.

Beside these restrictions, there are some concentration clauses. Closed pension entities can hold a maximum 20% of the capital of a single company. Investment in real state is limited to 16% and this limit is gradually decreasing to 8% until 2009. Loans to participants are restricted to 15% of the total assets.

Similarly, open pension entities have no limits on government bonds. But, the aggregated investment in corporate bond is restricted to 80%. The investment in listed stocks is limited to 49%.

Regulation regarding minimum return

Defined contribution pension plans provide a guarantee a minimum return of usually 6%.

Asset valuation

Legal requirements establish a transparent basis for valuing pension fund assets. Pension funds make a daily valuation of all instruments, according to their economic or market value. However, certain bonds which are kept until maturity are subject to a different valuation.

Investment returns

The performance of defined benefit pension plans is calculated using the internal rate of return (IRR), according to the following formula:

$$IRR = \left[PB_{ant} + (C_{atu} - C_{ant}) + \sum FC_{(i)} \right] / PB_{ant}$$

Where, PB_{ant} is the total patrimony of the plan of benefits in the previous month, C_{atu} is the commitments assumed in the current month, C_{ant} is the commitments assumed in the previous month and $FC_{(i)}$ is the cash flow, adds of the revenues and expenses of investments in the month.

In defined contributions plans, in order to calculate the investment return, pension funds are divided into shares o quotas of equal value and characteristics. The quota is a unit of measurement defined by each administrator. Changes in the value of this unit reflect the yield on pension assets. The value of the quotas is calculated daily, based on the market value of assets.

The annual investment returns on the pension funds are calculated on a regular basis, as the ratio of the quota value of the system (C_{Tn}) in a given month to the adjusted average quota value of the system twelve months before.

The quota value of the system is determined daily multiplying the value of the bill in the useful day immediately previous to the day n (C_{Tn-1}) times the index of correction of the quota in the day n (I_n).

$$C_{Tn} = C_{Tn-1} * I_n, \text{ and}$$

$$I_n = \frac{A_n - M_{Tn}}{A_{n-1}}$$

Where A_n is the adds of the value of the assets, considered immediately in the useful day previous to the day n, deduced the provisions for payment of global administrative costs of the plan of benefits; A_{n-1} is the adds of the value of the assets, considered immediately in the useful day previous to the day n, deduced the provisions for payment of global administrative costs of the plan of benefits; and M_{Tn} is the adds of the movements considered in the day n, deduced the payments of global administrative costs of the plan of benefits whose compensation of box's release has been the drop in the provision.

CHILE

Introduction

A mandatory private pension system based on individual accounts was introduced in 1981, replacing the old *pay-as-you-go* (PAYG) regime, which was closed to new entrants.

Type of system

The public pension system includes at least three different programmes. First, the pension programmes for those members who remain in the old system, run by the Institute of Social Security Normalization (INP), which is now closed. Second, the State promises to finance a minimum old age pension to all members of the private pension system who, at retirement, have not accumulated enough funds in their personal accounts to finance a pension of an amount equal to or greater than the minimum pension, and who fulfill certain requirements as specified by law. These requirements include contribution for at least 20 years. Third, the welfare pension program (or “mean tested”) grants pensions to those people over 65 years of age and to disabled persons, provided that their income is lower than 50% of the minimum pension.

The private pension system is a mandatory fully-funded, defined contribution system with individual accounts where pension benefits are based on individuals' savings accumulated during their working lives. This system is privately managed by pension fund managing companies (Administradoras de Fondos de Pensiones, AFPs). Participants can make additional voluntary contributions in the individual account. Furthermore, voluntary savings account was created in 1987 as a complement to the mandatory individual capitalization account. A new law came into force in 2002 enlarge the number of institutions allowed to manage voluntary contributions, including banks, mutual funds, insurance companies and other institutions authorized by the supervisor entity. The Superintendence of Pension Fund Administrators supervises AFPs and ensures that the operation of the mandatory private pension system is in compliance with legal requirements

Participation in the system

Private and public employees who entered the labour market after January 1st, 1983 are required to participate in the private pension system. However, civil servants and other government employees, as well as members of the armed forces are exempt to participate as they have their own pension system.

Participation is not mandatory for the self-employed, the unemployed, those in the informal sector or those who were covered by the old system. However, employees who were covered by the old system had the option of joining the new private system. Transferring employees were provided with recognition bonds which represented their accrued pension benefits under the old system.

Contribution

Compulsory contributions are accumulated in individual capitalization accounts. Contributions are deducted from employees' taxable income by employers who transfer the monies to AFPs. They deposit them into the individual members account. The average contribution rate is 12.3% of taxable

income up to a maximum level of 60 U.F.⁸, which is currently around US\$2,017 a month. As a result, employees with higher salaries have their contribution cap. There is no employer's contribution.

The contribution is broken down into 10% which goes into the individual capitalization account, plus an additional amount fixed by each AFP, used to pay the premium for the employee's disability and survivorship insurance (0.95%), which is purchased from life insurance companies, and to cover the administration costs of the AFPs (1.35%).

Voluntary contributions allow employees to deposit a higher percentage of their taxable income than the mandatory 10% in their individual capitalization accounts. Employees pay in contribution of up to 50 UF per month with tax exemption.

Employees may also come to an agreement with their employers to deposit additional contributions into their individual capitalization account. These contributions are independent of the mandatory and voluntary contributions. The number of financial institutions authorized to offer voluntary saving plans was extended in 20002. Currently AFPs, banks, mutual funds and insurance companies are allowed to manage voluntary individual accounts.

Asset managers

Individual accounts under the funded system are managed by private, specialized pension fund managing companies or AFPs. The AFPs are subject to regulation to protect the assets of the members, reduce risk, promote efficiency and ensure an adequate return. The AFP is separate from the assets which it administers, which are owned by the members. If the AFP fails, the assets of the members are not affected, but are transferred to another AFP. In addition to their fund management services, the AFPs collect contributions and make payments, keep records of individual accounts, provide information to the regulatory body and members, and purchase group insurance policies to provide death and disability cover for members.

At the beginning, each AFP was permitted to operate only one pension fund for all the members. A new regulation enacted in 2000, allowed to AFPs to operate two different pension funds, fund 1 and fund 2. Fund 1 was allowed to invest in fixed income instruments, as well as, in variable income securities. The fund 2 was allowed to place the pension assets exclusively in fixed income securities.

Since August 2002, each AFP is required to offer four different types of funds, called simply funds B, C, D, and E, with varying degrees of risk. AFPs may also offer an additional fund A. This system is called the multifunds system. The funds are differentiated by the proportion of their portfolio invested in variable income securities (such as equities) and fixed income (such as bank deposit, mortgages, or government bond that offer a low level of risk or variability). An adequate range is given between the minimum and the maximum limits to enable the portfolio manager to optimize the investment in each fund.

⁸ UF is a measurement unit indexed to consumer prices. As a March of 2006 1U.F. was equivalent to US\$33.76.

Table 3: Characteristics of multifunds

Fund	Limit on investment in equities (%)	
	Minimum	Maximum
A	40	80
B	25	60
C	15	40
D	5	20
E	Mainly fixed income instruments	

Investment regulation

Assets may only be invested in instruments that have been specifically authorized by law, or by the Central Bank of Chile and the Superintendency of AFPs. The initial limits at the time of the reform were 100% for government instruments, 40% for term deposits, 60% for corporate bonds and 20% for shares in other pension funds. No investments in corporate equities were allowed, and investments overseas were prohibited.

As the local capital market was developed, investment in some stock was allowed, with a maximum limit by Law of 30% in 1985. Investment in real stock and stock from corporation property were authorized in 1989 with an overall limit for stocks that was still of 30%. A further important change took place in 1989 when the pension funds were authorized in the shares of the companies with concentrated ownership, and additionally, in 1990 a new instrument was introduced: shares of investments funds, with a limit that went up to 20%.

The inclusion of foreign instruments as eligible securities was authorized in 1990, however the regulations were published just in 1992. Since then important progress has been made in the maturing of pension funds investment abroad. With the implementation of the multifunds system (February 2002), the foreign investment limit was fixed in 20% of the total value of the pension fund for a period of 12 months since the data in which the law was published, then a range between 20% and 25% for the following 12 months and a range of between 20% and 30% from March 2004⁹.

The financial instruments issued by private institutions are subject to rating processes depending on their type. For debt instruments, risk rating is carried out by private companies. In the case of shares, where it is not appropriate to carry out risk-rating, it is possible to distinguish two groups: shares approved by a Risk Rating Commission and shares which do not need approval.

Investment limits sets specific limit per issuer as a percentage of the value of the fund. There are different limits per issuer, depending on the economic sector concerned. These may be defined as the financial sector (banks and leasing companies), the external sector, investment and mutual funds, the State and companies. At the same time there are different limits within each of these sectors, depending on the type of instrument concerned.

⁹ The definitive limit is established by the Central Bank.

Table 4: Investment regulation in the privately managed pension system: Chile

Asset category	Fund A	Fund B	Fund C	Fund D	Fund E
Government securities	40%	40%	50%	70%	80%
Time deposits, bonds, other Fin. Inst.	40%	40%	50%	70%	80%
Letters of credit	40%	40%	50%	60%	70%
Bonds of Public and Private Companies	30%	30%	40%	50%	60%
Bonds convertible to shares (sub-limit)	No sub-limit	No sub-limit	10%	5%	No sub-limit
Open plc shares and real estate plc shares	60%	50%	30%	15%	No sub-limit
Investment and Mutual Fund shares + Committed payments	40%	30%	20%	10%	No sub-limit
Mutual Funds shares (sub-limit)	5%	5%	5%	5%	No sub-limit
Commercial paper	10%	10%	10%	20%	30%
Foreign (superlimit)	20%-30%				
Other authorized by the C.B.CH.	1%-5%	1%	5%	1%	5%
Risk hedging operations	Investment of the Fund in instruments being hedged				

Monthly minimum return regulation

AFPs must credit at least a monthly minimum return to the individual account. The amount of the minimum return depends on the type of fund.

For the fund A and B, the minimum return must be the lower of the: average real annualized rate of return of the last 36 months of all the funds of the same type minus 4 percentage points; and average real annualized rate of return of the last 36 months of all funds of the type minus the absolute value of 50% of this average rate. For the fund C, D and E, the minimum return must be the lower of the: average real annualized rate of return of the last 36 months of all the funds of the same type minus 2 percentage points; and average real annualized rate of return of the last 36 months of all funds of the type minus the absolute value of 50% of this average rate.

Asset valuation

The value of the accounting unit of each pension fund is fixed daily on the basis of the economic or market value of the investments. The valuation methods for the different instruments are therefore based on this principle. The eligible instruments may be divided into four groups: financial intermediation, fixed income series, variable instruments and derivatives. Foreign instruments are valued using the bases described below, with the variations proper to the international markets in which they are traded.

Financial intermediation instruments

Financial intermediation instruments include promissory notes of the Central Bank, promissory notes and time deposits issued by financial institutions, and commercial paper issued by companies with amortization and interest payment at term. They are valued daily according to their economic value, using for the purpose the Internal Rate of Return (IRR) obtained from the transactions carried

out in the formal secondary markets. In order to decide on the relevant rate, these instruments are grouped by category, with all local financial intermediation instruments of the same type, risk rating, term conditions and systems of readjustment or currency belonging to a single category.

Fixed income series instruments

Fixed income series instruments, including promissory notes of the Central bank of Chile, are valued daily at the current value of future cash flows, discounted at the relevant market rate. The relevant rate is the average weighted IRR of the valid transactions in instruments belonging to a single category. These instruments include re-adjustable promissory notes from the General Treasury of the Republic, re-adjustable promissory notes from the Central Bank of Chile, letters of credit issued by financial institutions, company bonds and financial institution bonds.

Variable income securities

Company shares are valued daily at the average weighted price of the last day of valid transactions, weighted according to the percentage representing the number of units traded in each of the operations compared with the total number of shares traded in the day.

Investment fund shares are two valued according to two methodologies in use. First, when their annual presence on the stock exchange is less than 20%, the shares are valued daily on the basis of the average weighted value of the transactions carried out up to the date of valuation. Second, when their annual presence on the stock exchange is equal to or greater than 20% and they have at least three months' trading behind them, they are valued in a way similar to that used for company shares.

Derivatives

Options are valued daily according to the simple price of the last three days' transactions in the formal secondary markets. If there are no transactions within that period, the price taken will be the price as of the last day on which transactions were registered. The market value of forwards corresponds to the updated difference between the forward price agreed in the contract and the market forward price in force on the valuation day. If there is no market forward price for the month during which the contract expires, the market price for the nearest expiry date to that of the forward contract will be used.

Investment return

The Superintendence of pension funds calculates for each pension fund the average real monthly investment return at month t (RR_t). This indicator measures the variation of the average value of the quota ($\overline{VQ_t}$) at month t , with regard to its average value of the previous month ($\overline{VQ_{t-1}}$). This indicator is published in real terms, therefore include the variation in the consumer price index.

Quota is an accounting unit used by the pension funds. The values of the quota increases or decrease according to changes in the investment return of the pension funds. The average value of the quota of a fund is determined for a calendar month as the sum of the quota values for each day, divided by the number of days in that month.

$$\overline{VQ}_t = \sum_1^m \frac{VQ_{it}}{m}, \text{ and} \quad RR_t = \left[\left(\frac{\overline{VQ}_t}{\overline{VQ}_{t-1}} \right) \frac{\overline{VQ}_{t-1}}{CPI_t} \frac{CPI_t}{CPI_{t-1}} - 1 \right] * 100$$

Where, VQ_{it} is the daily value of the quota of the fund i in the month t and m is the number of days in the month t . CPI_t and CPI_{t-1} is the consumer price index at the month t and month $t-1$ respectively.

COLOMBIA

Introduction

Colombia enacted the General Pension System (GPS) in 1994. It introduced a new privately managed pension system as an alternative to its existing public pension system.

Type of system

The General Pension System is structured in two alternative components: the public pension system and the private pension system. The public pension system comprises the defined benefit average premium system and two additional funds, the solidarity pension funds and the minimum guarantee pension fund. Both of them provide a solidarity component to the private pension system.

The defined benefit average premium system is a publicly managed *pay-as-you-go* (PAYG) system managed the Social Security Institute (Instituto de Seguros Sociales). The solidarity pension fund is used to increase coverage for that population that does not have access to the social security system. The minimum guarantee pension fund is used to increase individual account balances if they are insufficient to finance the minimum benefit.

The private pension system is a compulsory fully-funded individual accounts system for those members who opt out the publicly managed defined benefit average premium system. Assets are accumulated according to the defined contribution principle. This system is privately managed by pension fund managing companies (Pension Fund Administrators, AFPs). AFPs may also invest and manage voluntary pension funds. The Colombian Banking Superintendence is in charged to regulates, supervises and ensures that the operation of the private pension system is in compliance with legal requirements

Participation in the system

Participation in either the public or the private pension system is mandatory for all public and private sector employees. They can choose between the publicly managed defined benefit average premium system and the private funded system, but cannot participate in both simultaneously. However, they have the possibility of moving from one to the other every 5 years but, for those who are missing less than 10 years to meet the pension age for the public scheme cannot move. When a

person has contributed more than 150 weeks, and transfers from the public to the private system, the public entity is obliged to issue a pension or “recognition” bond for a value and conditions previously established in the Law.

Participation of self-employed in the private pension scheme is voluntary, provided their contributions reach a minimum level.

Contribution

The contribution percentage in the public and the private system is the same. The contribution rate has been increasing steadily over the years from 13.5 % in 2003 to 14.5% in 2004 (15.5% in 2006). The employer pays 75% of the total contribution and the employee the remaining 25%. The minimum monthly contribution base salary is the minimum monthly national salary (COP 381,500) and the maximum is 25 times the minimum monthly national salary (COP 9,537,500). These limits also apply to self-employed workers.

The difference between both systems lies in the way of distributing the mentioned contribution. In the public system, part of the contribution goes to increase old age pension reserves and the rest to cover the administration commission and disability or survival pensions. In the mandatory private pension system, the contribution destined to the individual’s private account is 10%, 3% cover the administration commission and the acquisition of insurances for invalidity and survival pensions, and 1.5% is destined to a fund that guarantees minimum pension for affiliates to the mentioned regime.

In addition, those affiliates who pay an amount equal to or greater than 4 minimum wages contribute an additional rate of 1% (up to 2%) to the solidarity pension fund. This fund has as main objective to subsidize contributions to General Pension System of poorer enrolled workers (community mothers, peasants, indigent ancients) and grant a subsistence pension to people over 55 years old (ISS) or 58 years (private pension funds) who lack sufficient capital to receive the minimum pension.

Self-employed workers contribute both the employee and employer contribution based on their declared income.

Asset managers

Pension fund administrators or AFPs are in charge of the management of the individual accounts. Each AFP may establish and manage several individual capitalization funds and one severance pay fund if authorized to do so by the Banking Superintendence.¹⁰ Moreover, AFPs may also manage voluntary pension funds, which are subject to less strict rules and regulations. The voluntary pension business has to be separated from the management of the mandatory pension funds.

Investment regulation

The law establishes a certain categories of investment that can be made by both mandatory and voluntary pension funds. A broad range of bonds, shares and other securities issued by local and foreign government and companies are available.

¹⁰ Severance funds were implemented in 1991. It covers all those who entered into work contracts after January 1, 1991 and those who decide to adopt it voluntarily. They are managed by AFPs. Under this scheme, worker receives the equivalent to one month salary for each year of service.

Mandatory pension funds are subject to a strict quantitative investment restrictions determined by the Banking Superintendency. Investment in equities and foreign securities was allowed from the beginning of the system. Securities must be protected against currency devaluation and must provide a real return, which reflects the financial market interest rate certified quarterly by the Banking Superintendency. By the end of 2005, the maximum global limits were the following:

Table 5: Investment regulation in the privately managed pension system: Colombia

Asset category	1993	2005
Public debt notes (domestic, foreign), issued or guaranteed by the Nation	50%	50%
Other public debt notes issued by State institutions	20%	20%
Securities issued, backed or guaranteed by the Guarantee Fund of Financial Institutions (FOGAFIN) and by the Guarantee Fund of Cooperative Institutions (FOGACOOP);	-	10%
Bonds and mortgage securities and other credit securities derived from mortgage securities portfolio;	30%	40%
Securities whose underlying assets are different from mortgage portfolio;	20%	20%
Fixed interest securities issued or guaranteed by institutions supervised by the Banking Superintendency;	50%	30%
State and portfolio contract discounts, as long as obligations compliance is guaranteed by a credit or insurance establishment;	-	10%
Fixed interest securities issued by institutions not supervised by the Banking Superintendency;	20%	30%
Variable interest securities: high and medium market liquidity stocks and stocks from privatization processes;	30%	30%
Low to medium market liquidity stocks and participations in ordinary common funds, securities funds and special common funds, different from those designed to invest in foreign financial assets;	5%	5%
Foreign securities, including: Fixed interest securities issued, backed or guaranteed by foreign governments, foreign central banks or foreign banks, participations in mutual funds of international investment that invest exclusively in fixed interest securities.	10%	10%

Other investment regulations include a maximum individual limit by issuer of 10%, a maximum limit by issue of 30%, a maximum concentration limit by equity ownership of 10% in shares if the same company non-related, a maximum of 5% in shares of the same company related, and, a maximum of 15% in consolidating entities: 15%.

Voluntary pension funds have a flexible investment regulation with no specific quantitative limits. However, the law specifies certain categories of investment, which include, securities in open markets managed by stock brokers, credit securities or mixed securities of closed markets managed by stock brokers, ordinary common funds and special common funds managed by trustee corporations, ordinary bonds and commercial instruments registered in the Stock exchange market, financial assets issued by foreign financial institutions, bonds listed in international stock exchanges, issued by multilateral credit organisms, foreign governments or public institutions with government guarantee, participations in international mutual funds or investment funds; financial or currency forward transactions.

Minimum rate of return regulation

AFPs must guarantee a minimum rate of return for mandatory pension funds that is determined by the Banking Superintendency. This minimum rate of return is determined as a composite of the AFP industry's average performance and the performance of a reference portfolio defined by the Superintendency. Half of the minimum return is determined as 90% of the weighted average performance of all pension funds. In calculating this average, the maximum weight of any one AFP may not exceed 20%. The other half of the minimum return is calculated as the weighted average of (i) 90% of the performance of the country's three stock exchanges taking into account the percentage of pension assets invested in equities (but at least 5%) and (ii) 95% of the return achieved by a reference portfolio, which in its composition takes into account the existing average portfolio of the AFP industry. If an AFP underperforms the benchmark, the shortfall has to be covered through the stabilization reserve.

AFPs must maintain a stability reserve for each pension fund that they manage in order to guarantee the minimum rate of return determined by the Banking Superintendence. The reserve minimum amount is 1% of the pension fund balance and is funded from the AFP's assets. The reserve must be kept separately from the AFP's other assets and those of the pension funds it manages.

Asset valuation

The Banking Superintendence and the Securities' Superintendence, jointly, issued a regulatory framework on accounting and valuation practices for the portfolios of supervised institutions. The objective of this regulatory framework is to establish uniform norms based on international standards, allowing the financial statements of supervised institutions to reflect the different prices of the securities negotiated in the market and to eliminate normative legal arbitrage for portfolio valuation. Pension fund investments are valued daily based on the following regulations:

Fixed income securities

When fair prices of exchange exist for the valuation day, the value of fixed income instruments is determined from representative transactions in formal markets, carried out in transactions administered by the Banco de la Republica¹¹ or by entities overseen by the Banking Superintendency of Colombia.

When fair prices of exchange do not exist for the valuation day, the market value of the individual instrument is calculated by adding up the present value of the future flows related to return and capital. The returns for fixed income securities with fixed rate are calculated applying to the principal the specific interest rate or the specific payment agreed in the instrument. On the other side, the returns for fixed income securities with variable rate are calculated applying to the principal the specific variable index agreed, increasing or decreasing according to the percentage points established in the conditions of each instruments.

Variable income securities

Collective investment schemes (open-end funds) are valued according to the value of the quota or share estimated for the management company the day immediately before the valuation date. Others variable income securities (equities) are valued according to a liquidity index during the valuation date. This is calculated on the basis of the presence and amount of transaction involving the equities on the stock exchange.

¹¹ Central Bank of Colombia

Instruments with a high liquidity index are valued according to the average weighed price of the last day of valid transaction published for the stock market in which the instrument is traded. Instruments with a medium liquidity index are valued using the average price of the last five days of valid transactions established in the stock market in which the instrument is traded. Finally, instruments with a low liquidity index are valued using one the following criteria. First, the acquisition cost adjusted by the variations of the price during the last six months since the date of valuation. Second, according to a price determined by an agent specialized in the valuation of negotiable assets. Finally, by a method that reflects accordingly the economic value of the investment, which must be previously authorized by general norms set up by the Banking Superintendency.

Investment traded in foreign trade markets are valued using the most recent quotation reported by the stock-market in which they are traded, during last the five days of valid transaction, including the day of the valuation. If there is no quotation during this period, theses investments are valued using the average of the quotations reported during last thirty days of valid transaction, including the day of the valuation.

If the instrument is traded in several stock markets, the instrument is valued using the average of the different quotations.

Investment return

The performance of the mandatory pension funds is calculated as annualized rate of return during the last 36 months. During the first three years of a pension fund's existence, the rate of return was calculated for the period since the start of operations.

According to the pension funds regulations, the pension supervisor calculates two indicators of investment return obtained by the pension fund managing companies: the annualized daily return at day i (ADR_i) and the accumulated return of the last 36 months at month t (AR_t).

In the first case, ADR_i is annualised ration between the daily return at day i (DR_i) and the initial value of the fund (VF_0). This is the only case in which the initial value of the fund (since the beginning of the system) is taken as reference in the calculation of return.

$$ADR_i = \left[\left(\frac{DR_i}{VF_0} \right) + 1 \right]^{365} - 1$$

The second indicator, AR_t , is the internal rate of return in annual terms, of a certain flow of funds during the last 36 months. This flow takes into account as inflows, the value of the fund during the first day of the period and the net value of the daily contributions (contributions less withdrawals) during the same period, and as outflow the value of the fund during the last day of the period. This rate of return must be reported daily.

$$AR_t = (1 + IRR_d)^{365} - 1$$

Where IRR_d is the daily internal rate of return.

COSTA RICA

Introduction

Costa Rica enacted a new pension retirement saving law in 1995. It preserved the publicly managed social security system and added a voluntary private pension system. A new pension law enacted in 2000 implemented a mandatory private pension system and, additionally, it establishes new regulation for the already existing voluntary system.

Type of System

The publicly managed pension system is part of the Disability, Old Age and Death Benefits Social Security System. It is a *pay-as-you-go* (PAYG) earning-related state pension system, administered by the Social Insurance Fund. In addition, there is a non-contribution pension system for low earners administered by the Costa Rican Social Insurance Fund.

The mandatory private pension system is a fully-funded system based on contributions to individual accounts, which are managed by specialized pension fund management companies (Pension Plan Operators, OPPs). Participants in the private pension system can also deposit voluntary contributions in the voluntary complementary pension regime. It is funded by individual capitalization and managed by OPPs.

Participation in the system

The participation in the private pension system is mandatory for all public and private employees. Self employed may join, and contribute to, a voluntary pension scheme. Given that the public PAYG system coexists with the private pension system, the members may be registered in both. Workers do not need to choose between the public and the private system.

Contribution

Total contribution rate for the mandatory private pension system is 4.25% of the employee's taxable income. This percentage is allocated entirely into the member's individual accounts. Of this percentage, 1% is paid by the employee and 3.25% by the employer. Total contribution to the public system is 6.25% of the employee's taxable income. Of this percentage, 4.75% is paid by the employer and 2.5% by the employee. The minimum monthly earnings for contribution purposes are CRC 88,847. There are no maximum earnings for contribution purposes.

Employees may make additional voluntary contributions, over the mandatory contribution rate, to a voluntary individual account. Additional contributions to the mandatory individual account are not allowed. Employers, who are not required by law to contribute, may also make voluntary contributions on behalf of their employers.

Asset managers

Mandatory and voluntary pension funds are managed by private pension funds managing companies or Pension Plan Operators (OPP). OPPs may establish and manage one mandatory pension fund and several voluntary pension funds. The OPPs are established as public limited companies with the main business aim of establishing private pension schemes. The Superintendence of Pensions may

authorize OPPs to also carry out other business. The establishment and operation of an OPP is subject to the Superintendence of Pensions.

Investment regulation

Pension fund assets may only be invested in instruments that have been registered by the National Registry Office of Securities and Intermediaries (Registro Nacional de Valores e Intermediarios) and securities issued by supervised financial institutions. Investments in the national market may be made either in the national currency (Colones) or in USA dollars.

The investment regulations governing the general guidelines to be followed by the OPPs establish maximum limits for investments in national securities and seek to avoid concentrations. These regulations also include additional limits, such as the sector to which the securities belong, the issuing entity, a state guarantee, the degree of concentration on a single issuing entity and type of instrument. Finally, the Superintendence of Pension has issued regulations for financial instruments issued by private institutions, which are subjected to different rating processes depending on their type, prohibiting certain types of investment carrying high risk.

The limits currently in force for each pension fund may be summarized as follows:

Table 6: Investment regulation in the privately managed pension system: Costa Rica

Asset category	2005
Securities issued by the Government and the Central Bank of Costa Rica and those issued by the Public Sector with a State guarantee.	70%
Securities not considered in the previous paragraph. This limit includes securities issued by private and financial entities, public entities without State guarantees, closed investment funds and entities under the National Housing Finance System (Sistema Financiero Nacional para la Vivienda, SFNV).	70%
Securities issued by private institutions with a AAA risk category	70%
Securities issued by private institutions with a AA risk category	50%
Securities issued by private institutions with a A risk category	20%
Investment funds (among the issuing entities that fall within the limits set in the paragraph b)	20%
Securities issued by financial entities with maturity dates under 180 days (among the issuing entities that fall within the limits set in the paragraph b)	10%
Securities issued by entities belonging to the SFNV	30%
Securities with a mortgage guarantee issued by SFNV entities or in mortgage deeds, so long as the yield from such securities is greater or equal to the average of that earned by the other investments of the fund.	Min. 15%
Investment in a single issuing entity or financial group, (except for the Central Government, the Central Bank and securities that have a State guarantee).	5%
Foreign investments were limited until 2000 to only those companies with a presence in Costa Rica. In 2001, foreign investment was broadened up to 20% of the fund. The existing regulation sets a ceiling of 25 % of total assets. This limit may increase up to 50% if the rate of return on domestic securities is less than, or equal to, the rate of return on foreign securities.	25%

Monthly minimum return

There are no legal requirements for a minimum rate of return to be credited to the member's individual account.

Asset valuation

Pension fund investments are valued daily on the basis of the market price. The valuation at market price is mandatory for equities and debt instruments whose period of maturity is higher or equal to 180 days. For those instruments which a period of maturity less than 180 days, the valuation at market price is optional. When debt instruments with a period of maturity less than 180 days are not valued at market price, they are valued distributing proportionally the benefits and losses accumulated since the day in which the instrument stopped being valued at market price until their maturity.

The valuation at market price implies to settle on the selling price of the specific instrument. This price is obtained from the observations in the formal markets. If on a particular day there is no trading or the trading is insufficient in terms of the methodology valuation, there are other mechanisms in order to obtain the market price of the instrument.

The valuation methodology seek that the estimation of the selling price of the debt instruments is consistent with principle of the net present value. For those instruments whose period of maturity is higher or equal to 180 days, but the estimation of their selling price is not possible, the valuation is made according to their amortization cost.

Each administrator entity of the investment portfolio is the responsible to make the valuation of the pension fund investments that it administers according to a valuation methodology selected by the same administrator entity, which must be registered before the General Superintendency of Securities (Superintendencia General de Valores). The valuation methodology must fulfil the general principles established by the General Superintendency of Securities.

Finally, the administrator entities belonging to a same financial group, must value each type of instrument (equities or debt instruments) in a uniform way in all their portfolios.

Investment return

In order to carry out the calculation of the investment return the Superintendency of pension funds take into account variation of the average value of the quota for one month, with regard to its average value of the previous month. The calculation of average value of the quota during the month t (\overline{QV}_t) considers daily value of the quota (VQ_{it}) and a month of 30 days.

$$\overline{QV}_t = \frac{\sum_{i=1}^{30} VQ_{it}}{30}$$

Pension fund managing companies calculate monthly two indicators of the investment returns: nominal (NR_t) and real investment return (RR_t), of the last 12 months and since the beginning of the system.

$$NR_t = \left(\frac{\overline{VQ}_t - \overline{VQ}_{t-1}}{\overline{VQ}_{t-1}} \right) \quad RR_t = \left(\frac{1 + NR_t}{1 + \Delta\%CPI_t} \right) - 1$$

Where $\Delta\%CPI_t$ is the perceptual variation of the consumer price index during the time t .

$$\Delta\%CPI = \left(\frac{CPI_t}{CPI_{t-1}} - 1 \right)$$

EL SALVADOR

Introduction

El Salvador implemented a mandatory private pension system (Sistema de Ahorro para Pensiones, SAP) in 1998. It replaced the old publicly-managed, defined benefit and unfunded pension system (Sistema de Pensiones Publico, SPP).

Type of System

The private pension system was designated in order to integrate the old *pay-as-you-go* (PAYG) system with a defined contribution individual account pension system. However, the old system was closed to new entrants. The old PAYG system consists of a non-contributory minimum old-age pension guaranteed by the State, financed mainly by transfers from the public budget.

The private pension system is a mandatory fully-funded individual accounts system managed by private pension fund managing companies (Administradoras de Fondo de Pensiones, AFPs) who invest savings of participants in the capital market. Assets are accumulated according to the defined contribution principle. In addition, employees are allowed to pay voluntary contributions, with tax benefits, into the individual capitalization accounts in the AFPs.

Participation in the system

Enrolment in the new pension system is mandatory for all employees who enter the work force for the first time and for all employees under 36 years of age who were enrolled in the old system on the date when the system came into operation. Although the old system was closed to new entrants, men between 36 and 55 years of age, and women between 36 and 50 years of age could choose between the two systems, while older employees had to remain in the old PAYG system.

Although membership of the SAP is irrevocable, before October 1999, employees who had transferred voluntarily to the SAP were allowed to return to the public system if they could prove that the transfer resulted in lower benefits. Employees who do not choose between the public and private options were automatically placed in the private scheme. Enrolment is voluntary in the case of self-employed.

Contribution

The total contribution for those employees who chose the funded system is 13% of taxable income, of which 10% goes into the individual account and 2.98% (paid entirely by the employee) goes to pay the disability and survivorship insurance and the cost of administering the individual accounts.

The contributions are paid by both the employee and the employer. Employees contribute 6.25% of taxable income, of which 3.25% is allocated to the individual account and the remaining 3% finance the premium for disability and survivorship insurance and the cost of administering the individual accounts. Employers contribute 6.75% of taxable income. The total employer contribution is allocated to the employee's individual account. Self-employed persons contribute 13% of income.

Members and their employers may make voluntary additional contributions to the individual account on an occasional or a regular basis.

Asset managers

The mandatory individual account system is managed by single-purpose pension fund managing companies or Pension Fund Administrators (AFPs). Each AFP can manage only one pension fund. The AFP is separated from the pension fund assets which it administers, which are owned by the members. The establishment of an AFP is subject to the authorization of the Superintendence of Pension, which oversees both the old and the new systems.

Investment regulation

Pension fund investment regulation defines legal quantitative restrictions for instruments and sets certain upper limits for groups of instruments. The law also specifies diversification requirements as investment limits for securities issued by a single issuer.

A special institution, the Risk Commission, is responsible for establishing detailed limits on the investment of fund assets in different investment instrument and risk categories within a general framework established by law. It also defines the maximum risk level for securities in which the pension funds may be invested. The Commission is made up of the Superintendents of Securities, Pensions, and the Financial System and the President of the Central Reserve Bank.

The investment regulation allows pension fund managing companies to invest 100% of the pension assets in securities issued by public sector institutions (the Treasury Department, Central Reserve Bank, state-owned companies and autonomous official institutions). A reform carried out in 2001 broadened the range of the maximum investment limit in Treasury securities from 20%-30% to 20%-50%, and also raised the maximum authorized limits for securities issued or guaranteed by state companies and autonomous institutions.

The investment regulation also requires to AFPs to invest a percentage of their assets in the Social Housing Fund (FSV). It is an autonomous credit institution, a public corporation, whose purpose is to contribute towards providing housing for lower-income workers. During the first year of the system (April 1998-March 1999), the investment percentage in the FSV was set in 30% of total assets. However, this percentage will gradually decline over a period of fifteen years to 10% of assets.

Maximum limits for issuers are defined on the basis of assets of the pension funds, assets of the issuers and assets of the business groups to which these issuers belong. Of total pension fund assets

invested a maximum of 6% may be in securities issued by a single company and a maximum of 30% in a single investment fund. Pension funds must not hold more than 10% of all securities issued by a single issuer or business group or more than 5% of the shares issued by a single issuer.

Pension fund assets must not be invested in shares issued by other AFPs, insurance and mutual fund companies, investment fund management companies, rating agencies, stock exchanges, stockbrokers and custodians.

AFPs have not been authorized to invest in financial instruments traded outside of El Salvador. The AFPs can only acquire securities from foreign issuers which have been listed in the local stock exchange and which have two risk ratings issued by rating institutions authorized by the Superintendency of Pensions. By the end of 2004 the limit was fixed at 7%.

Minimum rate of return regulation

The AFPs must guarantee a monthly minimal nominal rate of return to all members of the private scheme of at least the lesser of: the average monthly rate of return of all pension funds in the last 12 months minus 3 percentage points; and 80% of the average monthly rate of return of all funds in the last 12 months. AFPs must keep a reserve fund in order to compensate possible deficits arising from the monthly minimum return guarantee. If those funds are insufficient, the Superintendent has the right to revoke the AFP's license and appoint a liquidator. The liquidator will pay the AFP's debts from the assets that remain, including the minimum rate of return.

Asset valuation

The valuation of investment instruments is carried out at market prices, using price vectors provided by the Superintendency of Pensions. For non working days, the Superintendency will provide the valuation prices using the price of the day immediately before to that day.

Fixed income instruments

Zero coupon bonds are valued daily at the current value of their value at maturity, discounted at the relevant internal rate of return. The relevant discount rate used to value the zero coupon bond is determined based on the average weighed internal rate of return of the valid transactions in instruments belonging to a single category. If one particular day there is no transactions of any instruments of a single category, the internal rate of return is calculated using the rate applied the day before.

The valuation of bonds with periodic coupon payments and a face value payable at maturity is done daily according to their market value. The valuation method discounts the future cash flow of the instruments at the relevant discounted rate. The discounted rate of return is the weighted internal rate of return obtained in transaction carried out with instruments belonging to the same category.

Variable income securities

For equities, there are two different methods of valuation. These methods differ if there are valid transactions in the last 90 days.

In the first method, equities that had valid transactions in the last 90 days are valued using the weighted average price of the valid transactions during the last 10 days. These ten days are considered within a maximum period of sixty calendar days. If there were not valid transactions throughout the

period of sixty days, the equities will be valued according to the weighed average price of the last day of valid transactions registered. This price of valuation will be valid for until a maximum of 30 days after the period of 60 days.

The second method refers to those equities that have not had any valid transaction during the last 90 days. These equities will be valued updating the last price available within the last three years. In the day of calculation, the price of valuation will be adjusted using the ex-post rate of return of the society.

As regards valuation of investment fund quotas, the valuation methodology is also based on the existence of valid transactions during a period of 90 days. When investment fund quotas have valid transaction in the last 90 days, they are valued using the same valuation methodology of equities described above. When investment fund quotas have not had valid transactions in the last 90 days, they will be valued using the weighted average price from all valid the transactions since the beginning of operations of the investment fund up to date of valuation. The price of valuation will be monthly readjusted by the monthly variation of the Consumer Index Price (IPC).

Investment return

The investment return in El Salvador is calculated according to the variation in the average value of the quota during a specific period of time. The quota value refers to the fund assets value divided by outstanding shares of equal amount and characteristics. Its value increases and decreases in response to the yield of the pension fund investments. The monthly average value of the quota ($\overline{VQ_t}$) is determined for a calendar month as the sum of the unit values for each day i (VQ_{it}), divided by the number of calendar days in that month (m).

$$\overline{VQ_t} = \sum_{i=1}^m \frac{VQ_{it}}{m}$$

There are two different alternatives to measure the investment return of pension funds: Monthly nominal investment return during at month t (MNR_t) and the nominal investment return of the last 12 months at month t (NR_t). In addition, the investment regulation establishes that the Superintendency of Pension funds may require another periodicity for the calculation of the investment return.

$$MNR_t = \left[\left(\frac{\overline{VQ_t}}{\overline{VQ_{t-1}}} \right) - 1 \right] * 100 \quad \quad NR_t = \left[\left(\frac{\overline{VQ_t}}{\overline{VQ_{t-12}}} \right) - 1 \right] * 100$$

Where, $\overline{VQ_t}$ is the average value of the quota in the month t , $\overline{VQ_{t-1}}$ is the average value of the quota in the month $t-1$, and $\overline{VQ_{t-12}}$ is the average value of the quota in the month $t-12$.

MEXICO

Introduction

Mexico reformed its pension system in 1997. This includes the implementation of a mandatory private pension system based on individual accounts that entirely replaces the previous publicly managed *pay-as-you-go* (PAYG) system. Additionally, the new system also provides members with the possibility to make additional voluntary contributions to their accounts.

Type of system

The publicly managed pension system is financed on a PAYG basis with a redistributive objective, providing a guarantee of a minimum old age pension to all members of the private pension system who, at retirement, have not accumulated enough funds in their personal accounts to finance a pension of an amount equal to or greater than the minimum pension. The guaranteed minimum pension is set equal to Mexico City's minimum wage (about 40% of the average wage).

The mandatory private system is a fully-funded system, with contributions accumulating in individual saving accounts. Assets are accumulated according to the defined contribution principle. Individual saving accounts are privately administered by various specialized pension fund managers (AFOREs). The private system also provides employees and self-employed persons with the possibility to make voluntary contributions in their voluntary savings sub-accounts. Furthermore, since December 2000, some AFOREs started to operate an additional investment retirement fund for voluntary contributions (SIAV).

Participation in the system

Participation in the private system is mandatory for all employees who entered the labour force after the introduction of the scheme (1st July 1997). Employees are entitled to choose between different AFOREs in which their resources will be invested. According to the transition provisions from the old to the new system, employees who made contributions in the old system will be able to choose whether their retirement benefits will be paid by the old PAYG pension system or by the accumulated funds under the private scheme. Self-employed persons are not required to participate in the private pension system.

Contribution

Under the new retirement saving system, employers, employees and the government contribute a total of 6.5% of taxable income to the individual retirement account. Their respective contribution rates are 1.125% employee, 5.15% the employer, and 0.225% the government.

Unlike many other Latin American countries whose disability and survivors insurance is a separate private contract funded only by employees, Mexico has the IMSS (Mexico's old social security system) who is in charge of administering those programs. It is financed by contributions totaling 2.5% of taxable income (employees, 0.625%; employers, 1.75%; and the government, 0.125%).

Members can make voluntary additional contribution into a voluntary savings account without limit. These contributions do not receive favorable tax treatment.

Asset manager

Private fund managing companies or AFOREs are in charge of the administration and management of the individual retirement accounts. They are regulated and supervised by the National Commission of the Savings System for Retirement (CONSAR). Their only activity is the management of pension funds. Initially, each AFORE was limited to operate only one pension fund (SIEFORE), which must invest only in fixed income securities and inflation-protected instruments.

As a result of the increase in workers' voluntary contributions to their voluntary savings sub-account, in August 2000, the CONSAR issued general rules that allowed AFOREs to invest these funds in specialized SIEFORES, provided that their investment regulations guarantee employees a reasonable return on their income, as well as the necessary liquidity. Limits were established on the investment of funds in order to try to reduce market and credit-related risks.

Since November 2005, a new investment regime permits each AFORE to offer two SIEFORES with different types of investment strategies and risk levels. One of them is allowed to invest in both domestic and foreign equities.

Investment regulation

CONSAR is in charge of establishing prudential investment regulations governing the portfolio composition of SIEFORES. The pension law establishes strict quantitative limits on how much it is allowed to invest in different securities. These limits are expressed both as a share of the total value of the pension fund and as a share of each issuer in the total liabilities of all issuers from the same sector. The securities authorized by CONSAR included government securities, state owned companies securities, private debt instruments, shares of other pension funds and other debt instruments issued or endorsed by credit institutions.

The initial investment regime regulations for the SIEFORES, issued on June 1997, were particularly restrictive in order to safeguard and insulate pension participants from existing weakness of the financial sector. They could only invest in certain categories of assets as government bonds, private debt and bank debt. Investment in equities and foreign instruments were not allowed.

In addition, instruments issued or guaranteed by a single issuer was restricted to up to no more than 10% of assets, and investment in any one issue was limited to 10% of the total issue. Moreover, no more than 15% of assets could be invested in instrument issued by entities belonging to the same financial, commercial or industrial group. Investment in instruments issued by institutions directly affiliated with the mutual fund was limited up to 5% of assets.

The investment regime of the AFOREs has been relaxed since then. The following table gives the different limits per instruments and issuer, over the relevant period. The limits are expressed as a percentage of total assets.

Table 7: Investment regulation in the privately managed pension system: Mexico

Asset category	1996	2002
Inflation protected securities	Min 51%	Min 51%
Federal government bonds	100%	100%
AAA rated corporate bonds	35%	100%
AA rated corporate bonds		35%
A rated corporate bonds,		5%
Instruments issued by private financial institutions	10%	10%
Investment in debt issued by a single issuer (except for credit institutions, the federal government and the Mexican Central Bank);	10%	20%
Investment in debt issued by companies belonging to the same group.	15%	15%
Investment in AAA rated corporate bonds issued by a single issuer;		5%
Investment in AA rated corporate bonds issued by a single issuer		3%
Investment in A rated corporate bonds issued by a single issuer		1%

In addition, SIEFOREs can invest up to 10% of their assets in debt of Mexican issuers denominated in US Dollars, Euros or Yens. The lowest rating permitted for instruments of Mexican corporations denominated in foreign currency is BBB-.

A new investment law approved on November 12, 2004 authorized three changes in the investment regime. First, the new law enforces to divide each SIEFORE into two: SIEFORE 1 and SIEFORE 2. SIEFORE 1 is allowed to invest only in fixed income securities, local and foreign. Additionally, there is a minimum investment quota of 51% in inflation protected securities issued by the government or in corporate or municipal bonds with rating comparable to those of Mexican Treasury bonds. On the other side, SIEFORE 2, is allowed to invest in both local and foreign debt securities and in equities through Principal Protected Notes (PPN) linked to approved index. The old SIEFORE (before January 2005) became the SIEFORE 2.

Secondly, it allowed the equity exposure to local and foreign equities up to 15% of total assets of the SIEFORE 2. The purpose is mainly to differentiate the SIEFORE 2 from the SIEFORE 1, which is a fund free of variable income.

Finally, the third change was to allow SIEFORE 1 and SIEFORE 2 to invest in foreign assets as much in variable income instrument of foreign issuers as in debt instruments. The invest limit is 20%.

Monthly minimum return regulation

There is no legally prescribed minimum rate of return for SIEFOREs.

Asset valuation

Pension fund managers are required to mark-to-market the funds' assets everyday. However, due to practical limitations, funds are marked-to-model. True mark-to-market is not done.

The valuation methods are neither proposed nor developed by each fund manager. The models and the input sources are determined by a specific body called Valuation Committee ("Comité de Valuación"). This Committee is constituted by representatives of the Banking National Commission

and Values, Ministry of Finance, Central Bank, CONSAR and the National Commission of Insurances and Finance. This committee is attended by all the financial regulators, the regulated institutions through their representative associations, the “Bolsa Mexicana de Valores” (Mexican Stock Exchange Market) and some selected independent financial industry practitioners. The institution in charge of carrying out the daily pricing (called the “Price Vector”) is the Mexican Stock Exchange Market.

The Mexican Exchange Stock Market is the only responsible for applying the models but has no real responsibility over the quality of the actual prices. This has led to a questionable condition of many of the securities prices, in particular in volatile days. Despite this, the “Vector” system has had the advantage of having a single price for all the securities.

Since December 2005, the fund managers are allowed to estimate the asset valuation.

Investment return

Information on investment return consists of nominal (NR_t) and real return (RR_t), before commissions. Calculations for NR_t fund are made daily. These calculations are obtained in function to the variation of the price of the SIEFORE (similar to the quotas that acquire the affiliated with their contribution).

The price of the SIEFORE i at day t (P_{it}) is obtained as the ratio between the net wealth (assets minus liabilities) of the pension fund and the total number of units.

$$P = \frac{\text{assets} - \text{liabilities}}{\text{Total number of units}}$$

The daily nominal return (DNR_t) calculates the variation between the price of the SIEFORE i at day t (P_{it}) and the price of the SIEFORE i at day $t-1$ ($P_{i(t-1)}$)

$$DNR_{it} = \left[\frac{P_{it}}{P_{i(t-1)}} \right]$$

There are other two alternatives to measure the investment return of pension funds, which are published by the CONSAR every month: the accumulated nominal return in annual terms between the period $I-0$ (NR_{I-0}) and the accumulated real investment return in annual terms during the same period (RR_{I-0}).

$$NR_{I-0} = \left[\frac{P_{iI}}{P_{i0}} - 1 \right] * \frac{360}{n} \quad \quad RR_{I-0} = \left[\frac{1 + NR_{I-0}}{1 + I} \right] - 1$$

Where, n is the number of days of the period $I-0$ and I is the inflation during the same period.

PERU

Introduction

A new pension law introduced a private pension system in 1992. This private pension system (Sistema de Pensiones Privado, SPP) started operating in June 1993 as an alternative of the existing *pay-as-you-go* PAYG public system (Sistema Nacional de Pensiones, SNP).

Type of system

The public pension provision is made up of at least two different programs. The first program provides assistance and minimum benefits for low-income individuals. The government also provides benefits for all members of the private pension system who, at retirement, have not accumulated enough funds in their personal accounts to finance a pension of an amount equal to or greater than the minimum pension, and who fulfill certain requirements as specified by law. The second program is the public Social Insurance system. It is a contributory defined-benefit PAYG system.

The private pension system is a fully-funded, defined contribution system in which the contributions of each member are deposited in individual accounts. It is managed by private institutions known as pension fund managing companies (Pension Funds Administrators, AFPs). They invest the accumulated savings in tightly regulated portfolios. Participants in the private pension system may also make additional voluntary contributions in their individual accounts.

Contrary to other pension reforms, which phased out the old public system, the private system competes with the public pension scheme. For those participants in the private scheme who contributed to the public pension scheme before joining the private pension scheme a recognition bond were provided. This bond represents contribution to public pension scheme.

Participation in the system

Participation in the new pension system is mandatory for all employees entering the labor force for the first time. They have a 10 day period to decide whether to join the publicly managed social security or the private pension system. By default, the employer will automatically affiliate their employees in the private pension system. For those self-employed persons, the participation is voluntary in either the SNP or SPP.

Members of the publicly managed social security scheme may switch to the private pension scheme. Members of private pension scheme are not allowed to switch or change back to the publicly managed scheme except under very restricted legally specified circumstances. Employees who have accrued rights under the publicly managed social security scheme and switch to the private pension scheme receive recognition bonds in return for their accrued rights. These recognition bonds are credited to the individual account in the open pension fund chosen by the respective employee, but only become effective once the member retires

Contribution

Contributions to the SPP and the SNP are different. For those participants in the SPP, the total contribution is 10.5%, whereas in the SNP the total contribution rate is 13%.

Contributions in the SPP are paid only by the employee. The total contribution is broken down into 8% which goes into the individual capitalization account, and the rest is distributed between the insurance company (0.85%)¹² and the management fee charged by the AFPs (1.5%). Self-employed persons contribute also 10.5% but are free to determine the income on which contributions are to be paid and the frequency of contribution payment.

Members may make additional voluntary contributions (over the mandatory contribution rate) and employers, who are not required by law to contribute, may also make voluntary contributions on behalf of their employees.

Asset managers

Pension funds under the private scheme are managed by specialized private pension fund managing companies or Pension Fund Administrators (AFPs). These companies are in charge of managing participants savings deposited in individual retirement accounts. AFPs are not allowed to do any other type of business. They have to be set up as joint-stock companies. Furthermore, the net worth of the AFP is independent of that of the pension fund, and the AFPs must keep the accounts of the pension fund net worth separately. AFPs are licensed, regulated and supervised by a specialized agency, the Superintendence of Banking and Insurance (SBS).

Initially, AFPs could only offer one tightly regulated pension fund to their affiliates, with the allocation of assets limited by law. However, under a new investment regulation¹³ approved by the end of 2004, each AFPs was allowed to offer three types of funds with different level of risk. The three funds started to operate by the end of 2005.

Investment regulation

Strict investment regulations of pension funds were implemented since the inception of the new individual account scheme. It is based on the fulfilments of clearly defined quantitative limits. These limits are set for users, groups of issuers, instruments, group of instruments (assets classes) and foreign investments and aim at guaranteeing that the pension fund assets are invested under an adequate level of risk.

The investment rules prescribe only ceilings but minima for investment limits. AFPs decide on how to invest pension funds among those financial instruments authorized by the Central Reserve Bank of Peru in consultation with the regulator SBS.

Since 1993, the Central Bank authorized AFPs to invest a proportion of their funds abroad with an initial limit of 5%. However, investment in foreign assets began in 1999, after the regulator SBS passed the appropriate regulation¹⁴. The following table gives the different limits per instruments and issuer, over the relevant period.

¹² In order to cover the disability and survivorship insurance.

¹³ Multifund Law.

¹⁴ There are two different limits for investment in foreign assets: a legal and a operative limit. The legal limit is set by the Pension Law, whereas the operative limit is set by the Central Bank.

Table 8: Investment regulation in the privately managed pension system: Peru

Asset category	1996	1999	2001	2004
Instruments issued by the Central Government	30%	30%	30%	30%
Instruments issued by the Central Bank of Peru	30%	30%	30%	30%
Long term deposit and other titles from companies belonging to the financial system	30%	30%	30%	30%
Bonds issued by companies belonging to the financial system	25%	25%	25%	25%
Instruments issued for the purpose of mortgage financing by banks and financial institutions	40%	40%	40%	40%
Instruments issued for the purpose of mortgage financing by other institutions	40%	40%	40%	40%
Short term instruments	-	15%	15%	15%
Equities	35%	35%	35%	35%
Shares of investment and mutual investment funds	3%	15%	15%	15%
Derivates traded in the stock market	0.1%	0.1%	0.1%	0.1%
Certain securities (such as bonds, equities or shares of mutual funds) issued or guarantee by foreign government, central banks or other foreign institutions.	5%	5% (7.5% in 2000)	7.5%	10.5% (9% in 2003)

The number of pension funds managed by each AFP was extended to three (Type 1, Type 2 and type 3) by the end of 2004¹⁵. Each AFP must establish two pension funds (Type 1 and Type 2) and may optionally establish one additional fund (Type 3). These funds are differentiated mainly by the proportion of their portfolio invested in variable income securities, fixed income securities, derivative instruments and short term instruments. Ceilings set as a percentage of the value of each fund, were laid down for each class of instrument according to the type of fund. The next table below shows the investment ceilings for each fund and each instrument.

Table 9: Characteristics of multifunds

Instrument	Type 1	Type 2	Type 3
Variable instruments (Equities)	10 %	45 %	80 %
Fixed income instruments (> 1 year)	100 %	75 %	70 %
Derivative instruments	10 %	10 %	20 %
Short term instruments	40 %	30 %	30 %

Monthly minimum return regulation

The private system guarantees a minimum profitability to protect affiliates from strong fluctuations in returns. The minimum return was defined, as the lower between 25% of the average 12-month real rate of return of the system and the average monthly rate of return of all pension funds in

¹⁵ This regulation was implemented in November 2005.

the last 12 months minus 3 percentage points¹⁶. Additionally, AFPs must keep a mandatory reserve in order to compensate possible shortfalls arising from the minimum profitability guarantee.

Currently, there is a proposal to replace the previous mechanism for measuring minimum return for a reference index of return or “benchmark”. According to this new proposal, each AFP must choose a “benchmark” for each category of investment security in which the resources of each pension funds are invested, regarding local assets as foreign assets.

Regarding the selection of the reference index, each AFP must choose an index that reflects the composition and the expected return of the different categories of securities. This index must take into account the diversification and the risks included in the investment structure of each mandatory or voluntary fund. In addition, the indexes must characterize reasonably the performance of the market, in which the security is traded.

Asset valuation

Investment regulations, establish that pension fund investments are valued according to the following principles:

- a. Investment instruments are valued daily according to the quotations recorded in centralized and in non-centralized mechanisms of negotiation of securities¹⁷, which have been expressly authorized by the Superintendency;
- b. The valuation price will be calculated using the weighted average price of the last day of a valid transaction;
- c. Valid transactions are those transactions that fulfil the minimum requirements determined by the Superintendency for different investment instruments. The Superintendency determines this minimum requirements taking into account parameters like liquidity, concentration and market conditions.
- d. For all other instruments, the valuation is calculated on the basis to their purchase price.
- e. If on a particular day there is no trading in fixed income instruments, they are valued using the following rules: a) the last price applied; b) the price of similar investment instruments in terms of risk, term and other variables set up by the Superintendency; c) series of prices of relevant investment instruments established by the Superintendency.
- f. If there are no valid transactions for stocks or others variable income securities, the valuation will take into account the last valuation price registered during previous days.
- g. As regards mutual fund shares, they are valued considering the value of the share of the previous day.
- h. Investment fund shares are valued using the weighted average price of the valid transitions, only if during the last 60 working days, the frequency of negotiation of the shares is equal or greater to 25% and the total negotiated value is of at least 10% of the value of the fund.

¹⁶ Initially, if an AFP performed above the benchmark, the return in excess had to be channelled to a fluctuation reserve rather than into the affiliate’s balance. The fluctuation reserve was eliminated in 1999.

¹⁷ Centralized mechanisms are those that interconnect simultaneously several buyers and sellers with the intention of negotiating prices.

Investment return

The calculation of the investment return is based on the variation of the monthly average value of the quota ($\overline{VQ_t}$). The quota of a pension fund is a measurement unit, which defines the value of the pension funds in units of equal amount and characteristics. The average value of the quota is determined for a calendar month as the sum of the unit values for each day (VQ_{it}), divided by the number of days in that month (m).

$$\overline{VQ_t} = \sum_{i=1}^m \frac{VQ_{it}}{m}$$

Using the monthly average value of the quota at month t is possible to obtain the nominal investment return at month t (NR_t), with respect to the average value of the quota at month $t-12$ ($\overline{VQ_{t-12}}$). Consequently, using the consumer price index, is possible to obtain the real investment return at month t (RR_t).

$$NR_t = \left[\left(\frac{\overline{VQ_t}}{\overline{VQ_{t-12}}} \right) - 1 \right] * 100 \quad \quad RR_t = \left[\left(\frac{1 + NR_t}{CPI_t / CPI_{t-12}} \right) - 1 \right] * 100$$

Where, CPI_t is the consumer price index in the month t , and CPI_{t-12} is the consumer price index in the month $t-12$.

URUGUAY

Introduction

The old-age pension system was reformed at the end of 1995. The pension law created a two-tier system consisting of a publicly managed social security system and mandatory private pension system.

Type of system

The new social security system is a mixed regime, where the publicly managed social insurance (Régimen de Jubilación por Solidaridad Intergeneracional) is combined with the private pension system (Régimen de Jubilación por Ahorro Individual Obligatorio).

The public managed social insurance is a contributory defined-benefit *pay-as-you-go* (PAYG) system. The mandatory private pension system is a fully-funded defined contribution system, where the participant's contributions are accumulated in individual accounts. The Banco de Prevision Social (BPS) manages the social insurance, whereas the new private pension fund management companies (Administradoras de Fondos de Ahorro Previsionales, AFAP) are in charge to manage the private system. Employees and employers may make voluntary contributions in the private regime.

Participation in the system

Participation in the new pension system is mandatory for all employees and self-employed persons under 40 years old at the time of the reform. Employees over 40 years old had 6 months to decide whether to stay with the old public PAYG system, or switch to the new mixed regime. The old system was closed to new entrants.

Participation in either the public or the private system depends on the covered employee's salary, and to some extent the employee's choice:

- The publicly managed social insurance system includes all those employees and self-employed persons earning up to UYU 12,951 a year, but they may join the private pension system on a voluntary basis in which case they are entitled to transfer a part of their contributions payable to the publicly managed scheme to their pension fund administrator.
- The private pension system includes employees and self-employed persons who earn more than UYU 12,951 a year and join the labour force for the first time.

Contribution

Contributions paid by employees are used in two different ways. One portion pay for the "solidarity" benefits, and the remainder is to be deposited to the funded individual mandatory saving accounts. How these allocations are made depends on the employee's salary, and also to the employee's choice.

For those employees in the publicly managed social insurance system, the contribution rate is 15% of earnings. Depending on the amount of earnings and the choices made by the employee, this amount may be divided between the public and the private system. Thus, these employees may choose to deposit up to half of their own contributions into the private system, with the remainder of their contribution plus the entire employer portion being deposited into the public scheme.

The employee contribution in the private pension system is 15% of the part of their annual earnings between UYU 12,951 and UYU 38,854, of which 12.143% goes to the employee's individual account, 1.879% is the administrator's commission and 0.978% goes to the insurance company. The employer's contribution, which goes entirely to the PAYG, is 12.5% plus 5% for a mutual insurance for all wage levels.

Asset managers

Specialized pension fund management companies (AFAPs) are in charge of managing the mandatory private pension system. AFAPs must establish and manage one open pension fund. They are established as public limited companies and they can only run one pension fund. State-owned banks and private financial institutions may form AFAPs. AFAPs must keep the pension funds' assets separate from their own resources. The Uruguayan Central Bank controls the overall structure of the AFAPs including investment regulation.

The funds corresponding to the publicly managed social insurance system are managed by the Banco de Prevision Social, which also manages non-contributory benefits, unemployment insurance, sickness insurance and family allowances.

Investment regulation

AFAPs face strict investment requirements over pension fund assets. There are legal restrictions on the investment of funds assets including quantitative restrictions for different asset classes, on investment in single issuers and on investment in foreign currency denominated assets. Investment in certain financial institutions is prohibited (e.g. other AFAPs, insurance companies, foreign companies). Investment in certain assets such as unit of investment funds is subject to the approval of the Central Bank.

Investment limits have not changed significantly since the inception of the system. By the end of 2004, the legal restrictions on the investment of funds assets include the following (as a percentage of the total pension fund):

Table 10: Investment regulation in the privately managed pension system: Uruguay

Asset category	2004
Government bonds	Initially 100%, falling to 60% (minimum investment limit 40%)
Banks bill issued from the Uruguayan Mortgage Bank (Banco Hipotecario de Uruguay)	30%
Fixed period deposit	30%
Uruguayan corporate or public stock	25%
Direct Uruguayan investment with financial guarantees	20%
Loans of up to 2 years duration with a minimum ROR (return on revenue)	15%

Further rules limit the sum of holdings under items (b) through (f) to less than 20% during the first years, rising by 5% and 10% per year to a maximum of 70%. Items (d) + (e) + (f) cannot exceed 40%. Finally, several types of investments are prohibited including foreign investments (except for financial institutions operating in Uruguay), insurance company paper, paper issued by AFAPs, and paper issued by investment companies. In May 1999, the Central Bank approved a regulation allowing AFAPs to invest in the Montevideo Stock Exchange.

Minimum rate of return regulation

The required minimum return is equal to the system's average return minus 2 percentage points. The calculation of the minimum rate of return is done monthly based on the previous 12 months. AFAPs must keep a reserve fund in order to compensate members when the fund's return is below the minimum guarantee.

Asset valuation

The Central Bank of Uruguay Pension fund supervises daily the asset valuation of pension fund investment. The AFAPs must value the pension fund assets daily and on a marked to market basis. The Central Bank of Uruguay is in charge of carrying out the daily pricing (called the "Price Vector").

Pension funds investments are valued daily on the basis of the market value of the investment. The market value is the weighted average price of the valid transactions carried out in the formal secondary markets during the last working day.

Instrument issued by the Uruguayan Government

Treasury bonds issued by the Uruguayan government are valued daily on the basis of the market value, plus the accrued interest at the valuation date. If on a particular day there is no trading of treasury bonds, they are valued using the following criterion: For those instruments with a maturity less than one year, the valuation will be calculated daily using the corresponding nominal value, plus the accrued interest at the time of valuation. For those bonds with duration longer than one year, they will be valued take into account the last market price plus the accrued interest at the time of valuation. Treasury bills are valued using the nominal value discounted at the relevant interest rate.

The valuation of “Bonos Globales”¹⁸ is valued daily on the basis of the market value, plus the accrued interest.

The investment in bonds issued in foreign currency is valued using the same criteria than valuation of treasury bonds.

Instruments issued by the Uruguayan Mortgages Bank and the Uruguayan Central Bank

Mortgage bonds are valued using the market value set up by the Uruguayan Mortgages Bank. Certificate of deposits are valued according to their adjusted nominal value, plus the accrued interest at the time of valuation.

The securities issued by the Uruguayan Central Bank for monetary regulation are valued using the market price, plus the accrued interest at the time of valuation.

Deposits in financial intermediaries

Fixed term deposits are valued on the base of the capital invested plus the accrued interest at the time of valuation. Bank deposit certificates are valued using their nominal value discounted at the relevant interest rate.

Instruments issued by public or private companies

Equities are valued using the market price of the last day of valid transactions. If there is no market price, the equities are valued according to their purchase price.

The negotiable instruments are valued using the market price plus the accrued interest at the time of valuation. If there is no market price, the valuation will take into account the nominal value plus the accrued interest at the time of valuation.

Investment funds shares are valued using the market price. If there is no market price, the valuation will take into account the value of the share.

Investment return

Pension funds management companies calculate both the nominal (NR_t) and the real investment return (RR_t), in order reflects the yield of the pension fund during the last 12 months.

¹⁸ Government bonds.

The nominal investment return (NR_t) is calculated as the percentage variation in the average value of the quota during the month t (\overline{QV}_t), with regard to its average value in the same month of the previous year (\overline{QV}_{t-12}). The value of the quota rises or falls according to the market value of the investments. The average value of the quota of a fund is determined each month (t) as the sum of the quotas values for each working day i (VQ_{it}), divided by the total number of working days during the month t (m_t).

$$\overline{QV}_t = \frac{\sum_{i=1}^m VQ_{it}}{m_t}$$

In order to calculate the real rate of return (RR_t), the nominal return on investment is adjusted according to the annual variation in the Readjustable Index (UR_t). This index measures the monthly variation on the salaries. In other words it is a yield of investments after taking into account inflation.

$$NR_t = \left[\left(\frac{\overline{VQ}_t}{\overline{VQ}_{t-12}} \right) - 1 \right] * 100 \quad , \quad RR_t = \left[\left(\frac{1 + NR_t}{100} \right) * \left(\frac{UR_{t-12}}{UR_t} \right) - 1 \right] * 100$$

II. CENTRAL AND EASTERN EUROPEAN COUNTRIES

CZECH REPUBLIC

Introduction

On March 24th, 1994 the Supplementary pension Insurance Act became effective, containing the legal framework for the establishment of privately managed pension funds. It provides pension benefits in addition to the State *pay-as-you-go* (PAYG) system and receives a State subsidy.

Type of system

Czech Republic is one of the few countries that has not implemented a compulsory private pension system so far. The state pension system is financed according to the *pay-as-you-go* (PAYG) principle is with defined benefits, administered by the Czech Social Security Administration (CSSZ). It covers both employees and self-employed. Retirement benefits consist of a flat rate, and an earnings-related pension.

The supplementary pension provision is a voluntary private fully-funded, defined contribution system where only individual plans are allowed. Participant's contributions are deposited in individual accounts privately managed by pension fund managing companies. This system is regulated and supervised by the Ministry of Finance.

Participation in the system

Participation in the supplementary pension system is based on individual contracts. Employees, unemployed and self-employed over 18 years of age can, on a voluntary basis, participate in the supplementary pension scheme. Members are allowed to participate in more than one pension plan at the same time, but they can only pay contributions to a single plan at a time. In order to encourage participation in this scheme, the State grants subsidies and tax benefits for their participants.

Contribution

Members of supplementary pension system are obliged to pay monthly contributions according to the conditions stipulated in the pension plan and in the contract with the pension fund managing company. However, contributions may not be lower than CZK 100/month. The State makes additional contributions on behalf of individuals, which are subject to certain limits. The limits range from CZK 50 to CZK 150 per month depending on the size of the contributions paid. As member contribution increases, the amount of the State contribution increases in a smaller proportion.

Table 11: State contributions to the supplementary pension system

Member's contribution (CZK)	State contribution (CZK)
100-199	50 + 40% amount over CZK 100
200-299	90 + 30% amount over CZK 200
300-399	120 + 20% amount over CZK 300
400-499	140 + 20% amount over CZK 400
500 and more	CZK 150

The State contribution must be returned to the State by the pension fund managing company if a member terminates his plan before the date in which he is entitled to receive benefits (except if termination is due to a change of plans), or if he dies before receiving benefits from the plan and there are not beneficiaries of survivorship pension covered by the plan.

The supplementary pension system also allows employers to make additional voluntary contributions in behalf of their employees participating in the system of up to 3% of the employee's gross salary.

Asset managers

Individual accounts under the supplementary scheme are managed by private, specialized pension fund managing companies. These pension companies are stock holding companies with a special license from the Ministry of Finance. They are subject to regulation to protect the assets of the members, reduce risk, promote efficiency and ensure an adequate return. Pension companies are not authorized to offer more than one pension plan at the same time.

Unlike most other countries with defined contribution schemes with individual accounts, which require an asset management company to be separate from a fund consisting of member' contributions, in the Czech Republic there is a single legal entity which combine members' contributions and pension companies' assets. Current regulation does not segregate pension company shareholders assets from pension holder contributions, either from a financial or a legal perspective.

Investment regulation

Assets may be invested in a broad range of financial instruments that have been authorized by the investment regulation. It also specifies diversification requirements as investment limits for securities issued by a single issuer. However, the regulation does not make a distinction between the portfolio of financial and non-financial assets (or assets for "investments" and assets for "operation"). There is no rating requirement for securities.

There are no legal restrictions on pension funds investing in foreign assets. However, foreign investment is permitted only for securities traded in OECD markets. There is no limit placed on investment in Euro-denominated products, as long as the fund complies with the general restriction set out in the law. The following table gives the different limits per instruments and issuer, over the relevant period.

Table 12: Investment regulation in the privately managed pension system: Czech Republic

Asset category	2002	2003	2004	2005
Equities	25%	25%	No limit	No limit
Real estate	25%	10%	10%	10%
Bonds	No limit			
Investment funds	25%	25%	No limit	No limit
Loans	Not allowed			
Bank deposits	10%	10%	10%	10%
Foreign investments	No limit ¹⁹			
Securities issued by a single issuer	10% ²⁰			

Investment regulations also include a maximum concentration limit of 20% of the total nominal value of securities issued by the same company, a maximum limit of 10% for investment in a single property or one movable asset, and, a maximum individual limit of 10% or 20,000,000 Czech Crowns in bank deposits in a single bank.

Other quantitative regulation defines that at least 70% of total assets must be invested in assets denominated in such currency in which the liabilities to participants are stated.

Finally, a maximum of 70% of total assets must be placed in bonds issued by a member of the OECD or by the central bank of such state and bonds which a member of the OECD has guaranteed; bonds issued by the European Investment Bank, the European Bank for Reconstruction and Development or the International Bank for Reconstruction and Development or another international financial institution of which the Czech Republic is a member; participation certificates of mutual funds; securities traded on a regulated market of a country in the OECD, which market is permitted by the appropriate authority of the member state; movables constituting a guaranteed safe deposit of financial funds, with the exception of securities; and real estate providing a guarantee of a reliable placement of financial funds and serving entirely or predominantly for commercial or residence purposes.

Monthly minimum return regulation

Pension fund managing companies are not required to guarantee a minimum return.

Asset valuation

A special legal provision regulates the valuation methods of pension funds. The legal provision specifies the method of calculating the value of securities in the portfolio of mutual or investment funds apply commensurably to calculations of the value of securities in the portfolio of a pension fund. Funds shall use market value to determine the real value of investment securities, money market instruments and financial derivatives.

Financial instruments held to maturity, collective investment fund securities or financial instruments not actively traded on a market are valued using the average price of executed

¹⁹ Only in the case of the securities traded in OECD markets.

²⁰ This restriction does not apply to State bonds.

transactions. If this data is not available, the real value will be determined using the average price between binding supply and demand.

The valuation of real estate and movables has to be done before their purchase and furthermore by the deadlines as specified by the statutes of a pension fund, but not less than once a year. The valuation shall be done pursuant to the regulations in force at the time of the valuation. If such regulations do not exist, the valuation shall be conducted by a court expert who is independent of the pension fund.

The real value of real property owned by a collective investment fund shall be determined as the customary price determined by a surveyor. The real value of real property must not fundamentally deviate from the average price of real property.

Investment return

The pension fund managing companies do not have any official methodology to calculate investment return.

ESTONIA

Introduction

Estonia implemented a mandatory privately managed pension system in 2002, to complement its existing publicly managed mandatory *pay-as-you-go* (PAYG) pension system adopted in 1998. An additional voluntary private pension system was also introduced since 1998.

Type of system

The Estonia pension system is a mixed regime, where the public provision (State pension system) is combined with the private provision. The State pension system is financed according to the *pay-as-you-go* (PAYG) principle with defined benefits, providing employment related pensions (old-age, disability and survivor's pensions) and minimum national pension²¹. All employees, self employed and unemployed are covered.

The private pension system complements the State pension system. It is made up of two different programs: the mandatory pension scheme and the supplementary pension scheme. The mandatory pension scheme is fully-funded by personal contributions to individual accounts managed by pension fund managing companies. Assets are accumulated according to the defined contribution principle.

The supplementary pension scheme is a voluntary privately managed pension system, where the government encourages participation by providing tax incentives. Individuals can participate either by taking out a pension insurance policy or by investing in a privately managed pension fund.

²¹ The national pension guarantees a minimum income for persons who are not entitled to an employment-related pension.

Participation in the system

Participation in the private pension system is mandatory for all employees born after 1983 and who enter into the work force for the first time after the introduction of the scheme. Employees born between 1942 and 1982 were required to decide whether to join the system or not. Employees older than 60 years of age when the private system came into operation were not eligible to participate in the system. Self-employed are not required to participate in this scheme.

Individuals can participate in the supplementary pension system either opting for pension insurance policies offered by licensed private insurance companies or opting for pension funds managed by private pension fund managing companies. Participants who opted for pension insurance arrangements can invest voluntarily on a tax incentives basis on pension insurance policies. Participants in the privately managed voluntary pension funds contribute following the same principle as for the mandatory funds.

Contribution

Under the mandatory private pension scheme employees and employers contribute a total of 6% of taxable income to their individual retirement accounts. Employees contribute 2% of taxable income, whereas the employer's contribution is 4% of taxable income. Employer's contribution is part of an overall 33% social tax paid for social security benefits. In return for their contributions, participants acquire units of pension funds. Voluntary additional contributions to the mandatory individual account are not allowed.

Contributions to the supplementary pension scheme are voluntary and the amount of contributions is not prescribed by law²².

Asset managers

Individual accounts under the mandatory scheme are managed by specialized pension fund managing companies. The pension companies are private institutions whose exclusive aim is the administration of their members' individual accounts, the management of pension funds and the granting and administration of the benefits established by law. Pension funds managed by pension companies are not separate legal entities. Instead, they are similar to collective investment funds, managed by an independent fund management company.

The Financial Supervisory Authority supervises over pension fund managing companies. An operating license for the management of mandatory pension funds also authorizes the management of voluntary pension funds.

Pension management companies must employ fund managers for the management of pension funds assets. The appointment of a fund manager is subject to the approval of the Financial Supervisory Authority.

Pension companies are authorized to offer two or more mandatory pension funds provided that the investment policies of the funds differ significantly. At least one pension fund must be invested only in fixed income securities (bonds and deposits). Pension companies usually offer two or three

²² Voluntary contributions are tax deductible up to 15% of total annual income.

type of funds that invest 0% (conservative fund), 25% (balanced fund) and up to 50% (aggressive fund) respectively in equities. The following table shows the investment limits by each type of fund.

Table 13: Investment regulation in the different mandatory pension funds

Type of fund	Equities	Bond and Money Market Instruments
Progressive Funds	up to 50 %	no limit
Balanced Fund	up to 25 %	at least 50 %
Conservative Fund	no equity exposure	100 %

Investment regulation

Assets of a pension fund may only be invested in securities specified in the fund rules, taking into account limitations provided by the Investment Funds Act. Additionally, management companies must ensure that investments of the fund are sufficiently spread between different securities and other assets. Finally, a management company must establish internal rules of procedure for the management of risks associated with the investment of assets of the fund, which enable the management company to monitor and measure at any time the risk of the positions and their contribution to the overall risk profile of assets of the fund.

Investment limits have not changed significantly since the inception of the system. The following table shows the different limits per instruments and issuer for 2005.

Table 14: Investment regulation in the privately managed pension system: Estonia

Asset category	2005
Equities or investment funds invested in equities.	Up to 50%
Securities issued by companies of the same group.	5%
Securities issued by a single investment fund.	5%
Securities in a investment fund of the pension management company.	5%
Securities in the investment funds of companies belonging to the same group as the pension management company.	30%
Securities issued and guarantee by the Republic of Estonia, a member country of the European Union or another State issuing securities with equal or lower risk.	35%
Deposits of credit institutions registered in Estonia or another country specified in the pension funds rules.	35%
Deposits of a single credit institution or credit institutions belonging to the same group;	5%
Fixed assets located in countries specified in the pension funds rules.	10%

Finally, the Funded Pensions Act sets no limits on investing in EEA contracting countries, OECD members or certain another countries.

Monthly minimum return regulation

Since the establishment of the private pension system in Estonia, pension companies are not allowed to promise any minimum rate of return or projected rate of return.

Asset valuation

According to the Financial Supervision Authority, pension funds assets are valued according to their fair market value. However, the valuation methods can differ according to the type of instrument. Thus, pension fund investments are valued according to the following principles:

- a. Cash and deposits with credit institutions are valued according to their book value.
- b. Foreign currency and assets denominated in a foreign currency shall be restated in Estonian crowns on the basis of official exchange rate of the valuation date.
- c. The value of a listed security is determined on the basis of the closing price at the valuation date. If there is no closing price at the valuation date, the value shall be determined on the basis of the closing price of the day preceding the valuation date or on the basis of the latest known closing price. If no transaction with a listed security has been concluded on any stock exchange within ten business days, the value of the security shall be determined on the latest known closing price or ask quotation, whichever of them represents more accurately the market value of the security.
- d. For unlisted securities and securities the valuation is based on the probable sale price of the security, which has been determined reasonably, in the best interests of members, and at which independent and competent parties would agree to conclude a transaction with the securities.
- e. The value of the units of contractual funds, which constitute the assets of a fund, and the value of other similar foreign investment fund units or shares will be determined on the basis of the latest known redemption price.
- f. The value of the share of an investment fund founded as a joint stock company or of any other foreign investment fund of a similar type will be determined in accordance with the provisions for listed and unlisted securities.
- g. The value of listed derivative instruments is determined on the basis of valuation of listed securities.
- h. Upon acquisition of an immovable, the recognised value thereof shall be the acquisition cost.

Investment return

The Estonian Financial Supervision Authority supervises the computation of the investment return rate for each pension funds. It is calculated according to the variation in the Net Assets Value (NAV) of the fund. The internal procedural rules for determination of the NAV of a fund are determined by the management company.

To measure the performance of pension funds, pension companies use the following formula:

$$Performance = \left[\left(\frac{NAV_t}{NAV_{t-1}} \right) - 1 \right] * 100$$

Where NAV_t is the net asset value at the end of the period and NAV_{t-1} is the net asset value at the beginning of the period.

HUNGARY

Introduction

Hungary was the first country in Central and Eastern Europe to switch to individual accounts. Voluntary private pension funds were set up in 1994 as mutual funds. Four years later, Hungary introduced a mixed pension system, reforming the public pension system and introducing mandatory and voluntary individual saving accounts.

Type of system

The reformed public pension system is a *pay-as-you-go* (PAYG), defined-benefit scheme that covers all employees and the self-employed. Benefits are based on gross earnings during their entire working life and number of years worked. It also provides means-tested benefits to members who do not have a sufficient contribution record.

The mandatory private pension scheme (MPPS) consists of a fully-funded defined contribution system. Contributions are deposited in individual accounts administered by private pension fund managing companies (PPFs).

The voluntary private pension scheme is also a privately managed, fully-funded, defined contribution system. It provides employees and self-employed with the possibility to make voluntary contributions to their voluntary individual accounts. Pension funds managing companies have the same institutional framework as in the MPPS. Employers are encouraged to pay contributions on behalf of their employees through tax and social security allowances.

Participation in the system

After the introduction of the new pension system, participation in both, the public and private system, is compulsory for all employees and self-employed who enter into the work force for the first time after June 30, 1998, provided that they were younger than age 42.

For those employees and self-employed who contributed in the old pension system prior to June 30, 1998, they were free to decide until August 31, 1999 whether to remain only in the publicly managed social security scheme or join the mixed system consisting of a reduced publicly managed social security and mandatory private pension schemes. All members who decide to join voluntarily the new mixed pension system were allowed to change their decision once.

For 2002, the compulsion to become a member of the mixed pension system was suspended for persons entering into the labour force for the first time. Those persons who had become members of the new mixed pension system on a mandatory or voluntary basis prior to January 1, 2002 could leave the mixed system and choose to become a member of the old pension system. From January 1, 2003, participation is again mandatory for employees and self-employed persons younger than age 42 who enter the labour force for the first time. Persons who were already in the labour force prior to that date may join the mixed pension system on a voluntary basis, provided that they are younger than age 30.

Contribution

The total contribution rate into the mixed pension system at the time of the new system's introduction was 31% of the employee's taxable income. As of January 2003, this contribution rate was reduced to 26.5%. Of this percentage, 18% is paid by the employer and 8.5% by the employee. Employers' contributions are allocated entirely into the PAYG scheme. Employees' contributions are divided into which goes to the PAYG scheme (1.5%) and the individual capitalization account (7%).

For those members who chose to join only the public pension system, the total contribution rate is 19.5% of the employee's taxable income, of which, 18% is paid by the employer and 1.5% by the employee.

Mandatory contribution can be topped by a further 3% of voluntary contributions. Employers may choose to pay some or all of this additional contribution.

Asset managers

Individual capitalization accounts under the mandatory private pension scheme are managed by private, specialized pension funds managing companies (private pension funds, PPFs). PPFs are independent legal entities owned by their members. They can be set up by employers, professional associations, unions and employer association, voluntary pension funds and local governments. PPFs are also allowed to operate in the voluntary private pension system. PPFs may contract out activities such as administrative task, record keeping and registration, asset management, actuarial task and payment of annuities.

PPFs may manage the investment of pension funds internally or may contract it partially or entirely to an investment company, financial institution or investment fund company. The PPFs and financial institutions involved in the management and control of fund assets are under the Financial Supervision Authority (HFSA).

Investment regulation

Stringent prudential and investment regulations have been designed principally to protect the interests of workers. They are based on principles of safety and profitability. These regulations have taken the form of maximum limits for holdings of particular types of financial instruments. These limits are established by the Hungarian Financial Supervisory Authority. In addition, the investment regulation sets up very strict portfolio diversification rules.

Mandatory pension funds have a single investment strategy, however voluntary pension funds can by law invest in more than one strategy. The following table shows the investment limit by class of instrument between 2002 and 2005.

Table 14: Investment regulation in the privately managed pension system: Hungary

<i>Asset category</i>	2002		2003		2004		2005	
	<i>MPF</i>	<i>VPF</i>	<i>MPF</i>	<i>VPF</i>	<i>MPF</i>	<i>VPF</i>	<i>MPF</i>	<i>VPF</i>
Quoted equities	50%	60%	50%	60%	50%	No limit.	No limit	No limit
Unquoted equities	-	-	-	-	-	-	10%	10%
Real Estate	10%	10%	10%	10%	10%	10%	10%	10%
Mortgages bonds	25%	25%	25%	25%	25%	25%	25%	25%
Government bonds	No limit.	No limit.	No limit.	No limit.	No limit.	No limit.	No limit.	No limit.
Bonds	30%	30%	30%	30%	30%	30%	30%	30%
- Hungarian Corporate bonds	10%	10%	10%	10%	10%	10%	10%	10%
- Hungarian municipalities bonds	10%	10%	10%	10%	10%	10%	10%	10%
- Foreign municipalities bonds	10%	10%	10%	10%	10%	10%	10%	10%
Financial bonds	No limit.	No limit.	No limit.	No limit.	No limit.	No limit.	No limit.	No limit.
Investment funds	50%	50%	50%	50%	50%	50%	50%	50%
Hedge Funds	n/i	n/i	n/i	n/i	n/i	n/i	5%	5%
Private equity funds	n/i	n/i	n/i	n/i	n/i	n/i	5%	5%
Loans	0%	5%	0%	5%	0%	5%	0%	5%
Bank deposits	No limit.	20%	No limit.	20%	No limit.	20%	No limit.	20%
Foreign investment	30% (investment in non-OECD countries shall not exceed 20%)							

n/i: no information

MPF: Mandatory pension funds

VPF: Voluntary pension funds

The investment regulation also specifies maximum individual limit per issuer as a percentage of total assets of the pension fund. A maximum of 10 % may be invested in securities issued by a single issuer (except for state bonds) and no more than 20% of the overall value in securities and deposits issued by an organization belonging to the same banking group.

Monthly minimum return regulation

Until 2002, Hungarian mandatory pension funds were subject to a relative minimum return guarantee. The minimum return was a percentage of the official return index of long-term government bonds. Now pension funds need to disclose a target rate of return, but missing it has no consequences.

Asset valuation

In Hungary asset valuation for pension funds is strictly regulated by law. All pension funds shall use the same methods to value their assets. The valuation itself should be done by the pension fund's custodian. In the Hungarian system a custodian is mandatory, and all assets have to be accumulated by a single custodian. Custodians need to know about all the assets of the pension fund and are able to calculate the market value of the investments. The valuation of the assets depends on the asset type.

Local Instrument

The value of time deposit is the closing balance on the cut-off date plus the time proportionate interest earned but not yet credited.

Debt securities listed on the stock exchange market²³ are valued according to the last net closing stock exchange price in the valuation period, adding interest accrued by the cut-off date to the net price to arrive at the market value. If the term-to-maturity is more than three months, the market value shall be the sum of the arithmetic average of the best net bid and put prices published by the State Debt Management Centre (SDMC) on the cut-off date or the last working day preceding such date, and the interest accrued up until the cut-off date. If the term-to-maturity is less than three months, the market value shall be the sum of the net price computed for the cut-off date using the three-month benchmark yield published by the SMDC on the cut-off date or on the last date preceding such date, and the interest accrued up until the cut-off date. If these instruments have no price in the last 30 days, the valuation is defined using the last net average price, weighted for the volume traded, published by the cut-off date and registered in over-the-counter, trading and the interest accrued up to the cut-off date, provided that such data is not older than 30 days. The same method shall be applicable to debt securities not listed on the stock exchange market.

Equities listed on the stock exchange shall be valued in accordance with the closing stock exchange price on the cut-off date. If no trading occurred on the date concerned, the latest stock exchange closing price shall be used, provided such price is not older than 30 days before the cut-off date. Equities not listed on the stock exchange are valued using the last weighted average price published in the official journal of the Budapest Stock Exchange published for OTC trading, as long as it is not older than 30 days.

Investment units of open-end investment funds are valued according to the most recent net asset value per unit published by the fund manager. Investment units of closed-end investment funds are valued in line with the last stock exchange closing price or the last published net asset value.

Real property shall be valued based on a valuation prepared by a real estate appraiser independent of the pension fund, prepared for the cut-off date specified by the pension fund but at least on the cut-off date of the business year, which valuation may not be older than three months. In the year of acquisition of the real property, the pension fund may use the book value of the property.

Foreign instruments

Debt securities owned by the pension fund shall uniformly be valued at the sum of the last published net price and the interest accrued up to the cut-off date;

²³ Debt securities listed on the stock exchange include fix or variable interest bonds as well as discount treasury bills owned by pension funds

Equities listed on the stock exchange or on a recognised securities market shall be valued in accordance with the closing stock exchange price on the cut-off date or, in the absence of such, the price published in respect of the cut-off date. If no trading occurred on the date concerned at the location where the price is set, the last published price shall be used provided that such price is not older than 30 days on the cut-off date.

Investment units shall be valued at the net asset value per unit on the cut-off date or on the second working day following the cut-off date at the latest.

Investment return

The performance of the pension funds is calculated as the annual average net rate of return. This rate is calculated as mathematical averages, and not asset-weighted of the funds. The annual rate of return is calculated as the quarterly chain-product of the four quarterly rate of return.

Quarterly rate of return

$$r_t = \frac{MV_t - MV_{t-1} - \sum_{i=1}^n CF_i}{MV_{t-1} + \sum_{i=1}^n \left((CF_i + N_i) / P \right)}$$

Where MV_t is market value of assets on the last day of the quarter, MV_{t-1} is market value of assets on the last day of the preceding quarter, n is the number of deposits and withdrawals made to/from the fund during the quarter, CF_i is the net (positive or negative) value of the i^{th} deposit or withdrawal not related to asset management during the quarter, N_i is the number of full days remaining until the end of the partial term from the date of the i^{th} deposit or withdrawal and P is the number of days in the partial term.

Annual rate of return

$$R = (1 + r_1) * (1 + r_2) * (1 + r_3) * (1 + r_4) - 1$$

Where R is the annual rate of return of the fund and r_1, r_2, r_3, r_4 the quarterly rates of return of the fund in the four quarters of the year.

KAZAKHSTAN

Introduction

Kazakhstan launched an extensive reform of their existing pension system in January 1998. The reform transforms the *pay-as-you-go* (PAYG) system into a compulsory fully-funded defined contribution system. After a transition period of approximately 40 years, the PAYG system will be

phased out completely and participants will receive their pension benefits entirely through the fully-funded pension system²⁴.

Type of system

As a result of the pension reform, the pension system in Kazakhstan is structured in three components: the first one is the Solidarity pension scheme. It is a public, non-contributory, PAYG defined-benefit scheme. It provides benefits to current pensioners and to employees whose pension entitlement was accumulated under the old PAYG system and who are unable to accumulate sufficient pension savings under the new system²⁵.

The second component is the mandatory private pension scheme. It is fully-funded, defined contribution based on individual accounts and managed by private pension fund managing companies known as Accumulation Funds (AFs). Benefits under this system depend mainly on the amount accumulated on the participant's individual account and on his age. Members are also permitted to make voluntary contributions in their mandatory individual accounts. The third component comprises voluntary pension contributions.

Participation in the system

Participation in the new pension system is compulsory for all employees who enter the work force for the first time after the introduction of the new system. Self-employed and non-employed are also required to participate in the system. Employees who were covered by the old PAYG system were automatically transferred to the private fully-funded pension system.

Contribution

Mandatory contributions under the fully-funded pension scheme are accumulated in individual pension accounts. The contribution rate corresponds to 10% of the employee's taxable income up to a maximum level of 75 times the minimum salary²⁶. There are no employer contributions.

Additional voluntary contributions to mandatory individual accounts allow employees to deposit contributions over the mandatory 10%. The Employers can also make voluntary contribution on behalf of their employees.

Asset managers

The new mandatory pension system uses a centralized collection and record keeping system. Mandatory contributions to individual accounts are collected monthly by the employer and transferred to the State Pension Payment Center (SPPC). The SPPC subsequently redirect the contribution to specialized pension fund managing companies or Accumulation Funds chosen by the employee. Employee may choose between the publicly managed pension fund (State Accumulation Pension Fund, SAPF) and private pension funds (non-state accumulation funds, NSAFs).

²⁴ The transition period is expected to be complete by 2043.

²⁵ Employees with more than six months contributing in the old PAYG scheme will receive benefit for the service prior to January 1, 1998 from the old system.

²⁶ The minimum salary is approximately KZT 5,000 in 2003 (approximately € 32).

NSAFs are established as private, joint stock companies and can be managed as funds open to all contributors or as closed corporate funds only available to company employees. Their primary function includes the collection of contributions and administration of individual accounts. The NSAF is a separate legal entity from the assets which it administers. The establishment and operation of a NSAF is subject to the National Pension Agency.

Initially, each NSAF was required to contract one Asset Management Company (AMC) for the daily management of its portfolio, consistent with an investment strategy defined by the NSAF. AMCs were allowed to manage assets of more than one NSAF. A recent change in regulation allowed AFs to manage accumulated assets on their own by creating asset management units within their administrative structure²⁷.

The State managed accumulation fund was created as an alternative to the private funds and serve as default administration fund for all employees and self employed who fail to designate a fund.

Investment regulation

Investment regulation in Kazakhstan specifies certain categories of instruments that can be made by pension funds. A broad range of securities issued by local and foreign government and companies is available. The law also specifies legal restrictions, including quantitative limits for different assets classes and on investment in a single issuer.

Initially, both the SAF and the NSAFs were required to invest a minimum of 50% of their assets in government securities. SAF was allowed to invest up to 40 percent of assets in national (state-owned) bank deposits, and up to 10 percent in the issues of international financial institutions. In addition to bank deposits NSAFs were also allowed to place up to 30 % of assets in Class A corporate securities, which are listed on the Kazakh Stock Exchange (KSE) and are issued by corporations having at least a year of audited financial statements.

As of September, 2003 several changes in the rules governing the investment of pension assets came into force. The new rules do not change the limits, but the available options for investing pension assets. The SAF now can invest its assets in corporate securities and in instruments issued by International Financial Institutions (IFI). Moreover, the European Investments Bank is now included in the list of IFIs whose securities are permitted investments. The current and the past investment regulations are summarized in the following table.

Table 15: Investment regulation in the privately managed pension system: Kazakhstan

Asset category	Date of the limits adoption:			
	July 2003	December 2004	July 2005	November 2005
Securities issued by central government, National Bank and deposits in National Bank	not less 35%	not less 25%	not less 25%	not less 15%
Securities issued by municipal administration	5%	5%	5%	5%
Securities issued by domestic non-government organizations ²⁸	50%	Between 5%-50%	Between 5%-50%	Between 5%-50%

²⁷ For the time being, AMCs continue to manage the assets of AFs.

²⁸ It depends on credit rating assigned by rating agencies and other conditions.

Deposits in domestic banks	10%	15%	20%	20%
Securities issued by foreign government and foreign non-government organizations	Between 10%-40%	Between 10%-40%	Between 10%-40%	Between 10%-40%
- Securities of foreign states			AAA or Aaa: 40% AA or Aa2: 30% A or A2: 20% BBB or Baa2: 10%	AAA or Aaa: 40% AA or Aa2: 30% A or A2: 20% BBB or Baa2: 10%
- non-state foreign securities (both shares and corporate bonds)			AAA or Aaa: 40% AA or Aa2: 30% A or A2: 20% BBB or Baa2: 10%	AAA or Aaa: 40% AA or Aa2: 30% A or A2: 20% BBB or Baa2: 10%
Mortgage bonds issued by domestic organizations	10%	20%	20%	20%
Infrastructure bonds issued by domestic organizations	-	10%	15%	15%
Bonds issued by "Development Bank of Kazakhstan"	10%	15%	15%	15%

Monthly minimum return regulation

The mandatory pension system guarantees a minimum return defined, as the lower between 50% of the average 12 months real return of all non-state accumulation funds and the average monthly return of all non-state accumulation funds in the last 12 months minus 2%. Non-state accumulation funds must keep a mandatory reserve in order to compensate any shortfall of the real return rate.

Asset valuation

Valuation of pension funds investment is according to International Financial reporting Standards, in particular IFRS 39 "Financial instruments: Recognition and Measurement". The IFRS 39 mainly establishes rules for the valuation of assets on a market-to-market basis (fair value).

POLAND

Introduction

The legislation introducing private pension funds in Poland was enacted in 1998 as part of a comprehensive reform of the whole pension system, which included in-depth changes to the publicly managed *pay-as-you-go* (PAYG) pension system.

Type of system

The current pension system is a mixed regime, where the public pension system is combined with the private system (mandatory and voluntary). The public pension system is compulsory and operates on a PAYG basis with notional defined contributions²⁹ (NDC) run by the state-owned Social Insurance Institution (ZUS). It acts mainly as a redistributive and insurance mechanism in order to provide a safety net for all citizens.

The mandatory private pension system is fully-funded based on contributions to individual accounts in pension funds (Open Pension Funds, OFEs). These individual accounts are privately administered by various specialized pension fund management companies.

The voluntary private pension system is made up of two additional plans: occupational pension plans (PPE) and individual pension plans (IKE). Occupational pension plans were implemented since the beginning of the pension reform. They are defined contribution plans with individual accounts managed by private financial institutions. Individual pension plans started to operate since September 2004. They can take form of investments funds, individual accounts managed by broker companies, or life insurance plans.

Participation in the system

Participation in both the public and private pension system is compulsory for all employees who entered into the work force for the first time after the introduction of the system. Self-employed are also required to participate in the system.

Employees contributing in the old PAYG system born after 31 December 1968 were obliged to join both systems the mandatory funded pension system and the PAYG notional defined contribution system. Employees and self employed persons born after 31 December 1948 and before 1 January 1969 were free to decide whether to participate in both public and private system or to only contribute to the PAYG notional defined contribution system. This decision could not be reversed. Finally, employees born before 1 January 1949 were not eligible for the new pension system and remain therefore in the old system.

Contribution

Total contribution rate is 19.52% of the employee's taxable income, with half paid by employers and the other half by employees. Of the total contribution rate, 12.2% goes into the publicly managed NDC system (9.76% is paid by the employer and 2.46% by the worker). The remainder 7.3% is credited to the private funded system, which is paid entirely by the employee. Contributions are paid up to the limit of 2.5 times the average Polish salary³⁰.

In Poland, the contribution collection system is centralized. The entire contribution amount to the pension system is channeled to the Social Insurance Institution, in charge of distributing it to the different pension funds.

²⁹ Within such system, each individual account is credited with some theoretical points to represent contributions paid by the insured. The points are subject to growth at the rate decided by the government regulations. However, the notional accounts do not actually contain cash, stock, bonds or other securities.

³⁰ The average Polish salary as of January 1, 2003 is PLN 2,100. (approximately € 605)

Asset managers

The private pension system is run by private joint stock companies, called PTE (General Pension Societies). The PTE is separate from the assets which it administers, which are owned by the members. The creation of an asset manager requires permission from the Insurance and Pension Funds Supervisory Commission (KNUiFE).

Until the end of 2003, each pension fund managing company could manage only one pension fund and they shall have no other scope of activities than that of creating and managing this fund. Since 2004, each pension entity is allowed to set up a second open pension fund with a different type of investment strategy and risk level. One fund must be invested with higher proportion of equities, whereas the other fund must be invested mainly in fixed income instruments.

Occupational pension plans are managed only by investment funds, life insurance companies or specially established company pension funds. It is possible to have two or more PPE in one company. Employees may freely divide or transfer capital between them according to the contract concluded between employer and employees delegation which precedes the PPE establishment. Personal pension plans are administered only investment funds, brokers, insurance companies and banks.

Investment regulation

Resources must be invested only in financial instruments specifically authorized by the Law. Moreover, the Law specifies limits for the maximum percentage that can be invested in each instrument. Instruments currently authorized by the pension Law, include: bank deposits and bank securities, state-issued titles of the State Treasury, instruments issued by financial institutions, corporate, mortgage and municipal bonds, stocks and units of investment funds. Pension funds are also allowed to invest in foreign instrument.

The legislation does not provide for any limitations to investing in debt securities issued by the State Treasury or the National Bank of Poland. The other categories are subject to limits, which increase for instruments offering lower levels of liquidity or security, and for issuers representing a higher credit risk. Foreign investment is restricted to 5%.

The limits per instrument have not changed significantly in the last years. The following table gives the different investment limits (as percentage of total assets) for mandatory and voluntary pension funds in particular instruments, over the relevant period.

Table 16: Investment regulation in the privately managed pension system: Poland

<i>Asset category</i>	2002		2003		2004		2005	
	<i>OPF</i>	<i>EPF</i>	<i>OPF</i>	<i>EPF</i>	<i>OPF</i>	<i>EPF</i>	<i>OPF</i>	<i>EPF</i>
Shares in companies listed on the regulated stock-exchange market	40%	No limit	40%	No limit	40%	No limit	40%	No limit

Shares in companies listed on the regulated non-exchange market	10%	No limit	10%	No limit	10%	No limit	10%	No limit
Real Estate	0%	0%	0%	0%	0%	0%	0%	0%
Mortgages bonds	30%	5%	40%	5%	40%	5%	40%	10%
Municipal bonds ³¹	15%		40%		40%		40%	
Corporate bonds	10%		20%		20%		40%	
Certificates of close-ended Investment funds	10%	No limit	10%	No limit	10%	No limit	10%	No limit
Units in Investment funds (open-ended)	15%	No limit	15%	No limit	15%	No limit	15%	No limit
Loans	Equal to investment in the shares of the borrowers							
Bank deposits and bank securities	20%	No limit	20%	No limit	20%	No limit	20%	No limit
Foreign securities listed on OECD countries' stock market	5%							

Besides limits imposed on the categories of financial instruments, there are also restrictions per issuer:

- No more than 10 % of the fund's assets shall be invested in public mortgages issued by one entity.
- No more than 5% of the fund's assets shall be deposited with a single bank or with two or more affiliated banks.
- No more than 5% may be placed in any other single bank or bank group.
- No more than 2% (5%) of the fund's assets shall be invested in investment certificates of a single closed-end (open-end) investment fund or a single hybrid investment fund.
- Total value of the fund's investment in all securities of a single issuer or of two or more affiliated issuers shall not exceed 5 % of the fund's assets.

Monthly minimum return regulation

OFEs must guarantee a minimum rate of return for mandatory pension funds that is determined by the Pension Funds Supervisory Commission. It is defined as the lower of the: average real annualized rate of return of the last 36 months of all the pension funds minus 4 percentage points; and average real annualized rate of return of the last 36 months of all pension funds minus the absolute value of 50% of this average rate.

³¹ Publicly traded communal bonds and other communal debt securities

Asset valuation

The Decree of the Council of Ministers of 23 June 1998 details the rules for the valuation of assets of pension funds. They are similar to those of trust funds operating in the Polish market. Pension fund investments are valued according to their market value based on the following regulations:

Securities quoted on the regulated stock exchange shall be valued on the transaction day on the basis of a uniform rate for the day. For securities quoted in a uniform daily system the valuation is based on the latest closing rate. For securities quoted in a constant quotation system the valuation is based on the latest closing rate.

Securities quoted in the regulated over the counter market shall be valued on the transaction date on the basis of an average transaction price weighted by the volume of sales from the latest date on which a transaction was made during the transaction day.

Securities not quoted on the regulated market shall be valued at the latest purchase price on the primary market or in the first public offer, and if different prices have been set for different buyers, at the average purchase price weighted with the volume of securities of a given issue purchased by the fund.

Securities not admitted for public trading are valued at the latest purchase price, securities purchased at a discount or at a premium shall be valued using the method of a straight line depreciation of the discount or premium and that the value of securities to whose price interest is added shall be increased by interest due as at the valuation date.

Loan, credit or deposit dues shall be valued at the total of their nominal value and interest accrued as at the transaction date. Participation units sold by open investment funds or specialised open investment funds shall be valued at the latest redemption price of the unit as at the transaction date. In the period between the sale of participation units by an open investment fund and the first day on which the fund redeems these units they shall be valued at the latest purchase price.

The same valuation rules for domestic securities apply to foreign securities. The value of foreign securities shall be converted on the transaction date to the Polish currency at the average exchange rate published by the National Bank of Poland.

Investment return

The investment return in Poland is calculated according to the variation in the weighted average value of the accounting unit during a specific period of time. The accounting unit value refers to the fund assets value divided by the number of accounting units. Each accounting unit represents a proportionate share in each asset of the fund. Its value increases and decreases in response to the yield of the pension fund investments.

Using the monthly weighted average value of the accounting unit at month t ($\overline{VU_t}$) is possible to obtain the nominal investment return at month t (NR_t), with respect to the weighted average value of the accounting unit at month $t-12$ ($\overline{VU_{t-12}}$).

$$NR_t = \left[\left(\frac{\overline{VU_t}}{\overline{VU_{t-12}}} \right) - 1 \right] * 100$$

III. SELECTED OECD COUNTRIES

AUSTRALIA

Background

A new mandatory occupational pension system, the Superannuation Guarantee, was introduced in 1992 as part of a major reform to the nation's retirement income policy. In the last years, the Government has announced several key initiatives to promote competition. One such initiative was the introduction of the choice of superannuation fund. From 1 July 2005, employees have the right to choose which superannuation fund will receive their superannuation guarantee contributions.

Type of system

The Australian pension system comprises the state pension system (Age Pension) and the private pension system (the Superannuation Guarantee system). The Age Pension consists of a universal national pension, financed from general revenues. It provides a safety net payment for the elderly who are unable to fully support themselves financially in retirement. It is a mean tested, flat rate payment.

The Superannuation Guarantee system is a mandatory fully-funded individual account system managed by the private sector. Employers are required to contribute a percentage of employee's salary into the superannuation funds on behalf of employees. A new legislation introduced in July 2005, obliges employers to provide employees with the option of choosing their own superannuation fund into which the compulsory employer contribution are to be paid.

The majority of regulated superannuation scheme are defined contribution, with a small number of defined benefit schemes in existence. Many of these defined benefit schemes are, however, now closed to new members.

There are six administrative types of superannuation fund categorized by their different fund membership:

- Corporate funds which are employer-sponsored superannuation funds generally restricted to employees of the sponsoring employer.
- Industry superannuation funds which are open only to employer within a certain industry.
- Public sector funds implementing schemes that cover public sector employees.
- Retail funds which are offered to the public and to employers by financial service providers.
- Self managed superannuation funds which are funds with fewer than five members, where each member is also a trustee of the fund.

- Retirement saving accounts (RSAs) which are a contractual form of low cost saving similar to term deposits. They are capital guaranteed products offered by deposit taking institutions or y life insurance companies.

Superannuation funds are controlled by a board of trustees if the fund is run by an individual trustee or a board of directors if the fund has a corporate trustee. The trustees are responsible for the prudent management, operation and investment of the fund.

The superannuation guaranteed system also allows voluntary personal contributions above and beyond what is required by law. These can either be paid into an existing employer superannuation fund, or a separate plan. The government encourages such saving via tax incentives.

Participation in the system

Participation in the superannuation system is mandatory for all covered employees of a superannuation scheme implemented through a regulated superannuation fund. Employers are required to contribute a percentage of employees' salary into the regulated superannuation fund on behalf of employees. Since 1 July 2005, employees are allowed to choose the fund into which superannuation guarantee contributions are paid.

Membership is voluntary for the self-employed, with tax concessions offered to those who decide to contribute to a fund.

Contribution

The Superannuation Guarantee Act requires employers to contribute a prescribed minimum amount into superannuation funds. This applies to all employees under the age of 70 years. The minimum contributions are tax-deductible for employers. The prescribed minimum contributions were set initially at 3% in 1992, rising gradually to 9% in 2002-03. If an employer does not meet its obligations, the employer must pay the superannuation guarantee charge (SGC) to Australian Tax Office (ATO) an amount which is equal to the shortfall in contributions, plus possible administration and interest penalties. The mandatory contributions, which are fully vested, portable and generally fully funded, are placed in individual accounts. Additional voluntary contributions by employers and employees are possible,

Asset managers

All superannuation funds must be established as trusts for the purpose of providing retirement and death benefits for members. Since 2004, all new superannuation fund trustees required a superannuation trustee license granted by the Australian Prudential Regulation Authority (APRA). The trustees are responsible for the prudent management, operations and investment of the funds.

Trustees may manage the assets themselves or contract this task to an asset manager. Asset manager may be individuals or companies and are responsible for day-to-day operations of the superannuation funds. The fund administrators maintain member records, pay benefits, process member claims, provide reports to members and trustees, and prepare fund returns for regulatory authorities. Fund administrators are appointed by the trustees of the funds.

Investment regulation

Trustees must formulate and give effect to an investment strategy. The Prudent Person Principle governs the investment decisions of trustees, whether they make the decision on their own, or based on the advice of the appointed asset managers.

Legally defined trust covenant encourage portfolio diversification, but diversification is not explicitly required. Rather, trustees are required to be prudent and have regards to a funds' exposure to risk arising from inadequate diversification, when they formulate a funds' investment strategy. Furthermore, there are no legal restrictions on superannuation funds investing in foreign assets.

Minimum investment restrictions were imposed in order to ensure that superannuation savings are not put at risk through investments with employers, trustees and their associates. The only legal restrictions on funds asset are the following:

- A maximum of 5% of total asset may be invested in the sponsoring employer or other related party.
- Superannuation funds are generally prohibited from borrowing or maintaining an existing borrowing of money.
- Restrictions apply on lending to member and on acquiring assets from members.

Finally, trustees of funds investing in permitted derivative products are required to disclose the risk management practices and controls adopted for derivative in a Risk Management Statement.

Monthly minimum return regulation

Superannuation funds are not subject to any minimum rate of return requirement.

Valuation

According to the Australian Standard (AAS 25), assets of a defined contribution and defined benefit plans shall be measured at net market values as at the reporting date. The valuation methods for the different instruments are therefore based on this principle. Where a market value does not exist for long-term monetary assets, the calculation of net market value will require the determination of a present value by application of a current, market-determined, risk-adjusted discount rate.

Net market value is defined in AAS 25 as "the amount which could be expected to be received from the disposal of an asset in an orderly market after deducting costs expected to be incurred in realising the proceeds of such a disposal".

Regardless of who conducts the valuation the trustees must be able to demonstrate that the valuation has been arrived at using a 'reasonable' process.

CANADA

Introduction

Private pension plans in Canada are an important supplementary element in providing retirement income. Occupational pension plans were first established in Canada in the late 1800's and tax assistance has been provided since 1917. Voluntary individual accounts (Registered Retirement Saving Plans) were introduced in 1957.

Type of system

The pension system in Canada is founded on three different layers: the publicly managed pension system, the occupational pension system and the individual pension system. The publicly managed pension system includes the federal Old Age Security program (OAS) and the Canada Pension Plan (CPP). The federal Old Age Security program ensures that most people over 65 are provided with basic income support. It is a PAYG system funded from general federal government revenues. The Canada Pension Plan is a mandatory publicly managed defined benefit plan, which provides basic earnings-related pensions for all workers. It also provides disability, survivor and death benefits³². Virtually all employed and self-employed persons in Canada, including civil servants of the federal and provincial governments are covered by the CPP.

The occupational pension system consists of privately managed employer-sponsored plans, often called or registered pension plans (RPP). They are usually provided by employer, labour unions, association and professional organization. The term "registered" refers to the fact that, to obtain preferential tax treatment, a plan must conform to conditions specified in the Income Tax Act. The decision whether or not to have such a scheme is at the discretion of each employer. In most instances, it is the result of the collective bargaining process through which compensation, benefits and terms of employment are negotiated between an employer and the trade union or other association representing employees. RPPs can be funded in two basic ways: defined benefit and defined contribution plans.

The individual pension system comprises the registered retirement saving plan (RRSP). Their purpose is to encourage regular individual retirement saving through tax incentives. RRSP can be set up through most financial institutions, including banks, credit unions, trust companies, mutual fund companies, insurance companies, and investment dealers or brokerage firms.

Participation in the system

Occupational pension plans may be sponsored by employers on a voluntary basis and they may or not be established pursuant to a collective agreement between employer and employee representative.

Participation of employees to occupation pension plans is normally voluntary. However, provision for compulsory membership is permitted in British Columbia and Quebec. Employees may choose to join the occupational pension scheme provided by their employers or opt instead to contribute to an individual saving plan.

³² Quebec has its own parallel plan, the Quebec Pension Plan.

Self-employed are not covered by registered pension plans (occupational pension plans) but they may contribute to registered retirement pension plans (voluntary pension plans).

Contribution

Registered pension plans may be contributory or non-contributory. In non-contributory pension plans the entire cost of the plan is borne by the employer, while in contributory plans employees pay a portion of the cost. The plan rules determine whether the employee contributes and at what rate.

The contribution rate to registered pension plans varies between schemes. In defined benefit schemes, employers are required to contribute at a rate that ensure the assets of the pension funds are sufficient to cover the present value of pension payment for retired employees and future pension payment for active employees. Shortfalls must be amortized over specific periods. The Income Tax Act prohibits employer contributions where the surplus of plan assets exceeds the lesser of: 10% of actuarial liabilities, and two times the estimated amount of current service contributions, whichever is greater; or 20% of actuarial liabilities. Employee contribution to defined benefit schemes should not exceed 50% of the cash value of the member's pension benefit credit.

The total employee and employer contribution rate must not exceed the lower of 18% of salary or CAD 18,000 a year³³. The employer must to contribute a minimum of 1% of the total remuneration of the active members, however the total amount the employer is required to contribute to the plan must be specified in the plan text. If employees are required to contribute, the amount must be also specified in the plan text.

Contributions to an RRSP are limited to 18% of the preceding year's earned income to a maximum (\$16,500 in 2005) less the preceding year's pension adjustment (PA)³⁴. For individuals who are also members of registered pension plans, the maximum annual contribution to an RRSP is reduced, taking into account the contribution to the occupational scheme.

Asset managers

Plans are implemented mainly through trust or may be managed entirely by insurance company through an individual or group policy. However, some of the largest plan are classified as consolidated revenue arrangement³⁵. In these plans, most of the contributions are paid into the consolidated revenues of the government and benefits are paid out of general government expenditure on a PAYG basis.

Requirements vary across provinces with regard to the establishment of a board of trustees to administer the plan. Trustees can be either a trust company or three or more individuals. Funds of the pension plan, including those invested in these contracts, are kept separate from the assets of the trust company, and the principal and interest are not guaranteed.

³³ 2005.

³⁴ The pension adjustment (PA) amount is the value of the benefits you earned during the last year under your employer's registered pension plans (RPP) and other pension plans, and possibly, some unregistered retirement plans or arrangements.

³⁵ Largest plans includes superannuation plans of the federal public service, the armed forces, the Royal Canadian Mounted Police and the public service of some provinces.

Investment regulation

Pension plan assets can be managed by insurance companies, trust companies and trustees. They are in charge to formulate an investment strategy. The asset management follows the Prudent Person Principle, with some quantitative limits that are mainly diversification requirements. As long the Prudent Person Principle is complied, the investment regulation only prescribes maximum investment limits for investment in real estates and resources properties. A maximum of 15% may be invested in resource property and up to 25% in real estate and resource property.

Diversification conditions required that no more the 10% of the total assets can be invested in one company and no more than 5% in a single property or any one resource property. Moreover, there is a 30% limit on holding voting shares of a single company. This limit does not apply to investment in certain real estates or other permitted investments.

Until 2004, foreign investment limit was restricted up to 30%. Currently, there are no restrictions on investment in foreign securities.

Monthly minimum return regulation

Occupational pension plans are not subject to any minimum rate of return requirement.

Asset valuation

Valuation of pension fund assets is based on market prices.

Investment return

The performance for private occupational pension plans in Canada was measured using the Return on Investment (ROI) ratio. To calculate ROI, the investment income and the net on sale of securities is divided by the market value of assets during the previous period. Net on sale of securities is calculated as net profit on sale of securities minus net loss on sale of securities.

$$ROI = \frac{\text{Investment income}_t - \text{Net of sales on secu}}{\text{Market value of assets}_{t-1}}$$

HONG KONG, CHINA

Background

In 2000, Hong Kong decided to follow a multi-layer pension system and implemented a mandatory occupation pension system, the Mandatory Provident Fund system (MPF).

Type of system

The pension system in Hong Kong provides a safety net payment for the elderly who are unable to fully support themselves financially in retirement. It consists of three different programs, the Comprehensive Social Security Assistance (CSSA), the Old-Age Allowance (OAA) and the Disability Allowance (OA) schemes. The first scheme is a government founded, mean-tested program, providing assistance for various risks such as a low income, disability and old-age. The other two programs are also publicly funded, non-contributory schemes providing old age benefits.

Additionally, the Hong Kong pension system consists of occupational related retirement schemes. It includes the Mandatory Provident Fund (MPF) system, the voluntary Occupational Retirement Schemes Ordinance (ORSO) and a separate scheme for civil service employees.

The Mandatory Provident Fund system is a compulsory defined contribution retirement saving scheme managed by private sector fund managers. They are established by a single employer or group of employer to provide pension benefits for their employees when they leave or retire. There are three types of MPF schemes. A *master trust scheme* is a scheme with open membership to workers of different employers and different self-employed persons. An *employer sponsored scheme* is a scheme with membership open to the employees of a single employer. This type of scheme is only practical for companies with a large number of employees. An *industry scheme* is an industry-wide scheme specially established for employees in industries with high labour mobility, such as the catering and construction industries.

Before the implementation of the MPF system, some companies had been operating voluntary ORSO schemes to provide retirement benefits for their employees. At the implementation of MPF schemes, employers operating ORSO schemes were given the choice of applying for exemption from MPF requirements. Those employers who did not apply for MPF except status may retain their existing ORSO schemes, however they still have to set up or join a new MPF scheme. ORSO schemes can be defined benefit, defined contribution or hybrid.

Finally, retirement provision also comprises voluntary and individual retirement schemes. They are offered via bank savings, insurance arrangements or private investments. Additionally, some MPF schemes allow members to make additional voluntary contributions without going through their employees.

Participation in the system

Participation in MPF system is compulsory for all employees. Employers are mandated to enroll their employees in approved MPF schemes. Unless exempted, workers aged between 18 and 65 are required to join the system by enrolling in approved MPF schemes. The system includes full-time and part-time employees who have been employed for 60 days or more under employment contract. Self-employed workers are also required to join.

Contribution

The total contribution rate for the MPF system is 10% of the employee's relevant income³⁶. Of this percentage, 5% is paid by the employee and 5% by the employer. Contribution is subject to a floor and a ceiling. Workers earning less than \$5,000 a month do not have to contribute, but their employers have to contribute their 5%. The maximum level of income for contribution is \$20,000 per month. Both the employer and the employee can also make voluntary contribution in excess of the statutory minimum.

Self-employed also have to contribute 5% of their relevant income, subject to the minimum and maximum levels of income for contribution purpose.

Contribution rate to the ORSO schemes varies according to individual plans.

Asset managers

The MPF schemes are set up under trust arrangement. The trust arrangement means that scheme assets will be held separately from the assets of the trustees or the investment managers.

The investment of all MPF scheme assets is done by investment managers that are registered with the Securities and Futures Commission (SFC). They are appointed by the trustees. Each scheme typically offers 4 to 6 funds to its members, varying from conservative to aggressive and must include a Capital Preservation Fund, which is basically a money market fund.

Investment regulation

MPF scheme may consist of one or more constituent funds among which members of the scheme may choose to invest the pension assets. Each constituent fund must be approved by the MPF Authority (MPFA). If the scheme comprises two or more constituent fund, each of the funds must have different investment policies. In general each funds offer 6 different investment alternatives: money market funds, bond funds, capital preservation funds, balanced funds, guaranteed funds and equity funds.

There are some specific qualitative and quantitative investment restrictions in order to reduce some avoidable risks, such as those relating to liquidity, valuation, counter parties and diversification. These regulation include

The investment regulation allows asset managers to invest up to 10% of total assets in securities issued by a single issuer. Assets may be invested in fully paid-up shares listed on approved stock exchanges, investment grade debt securities or certain forms of convertible debt securities, and to a limited extent, listed warrants. Investment in fully-paid up shares listed on a stock exchange that is not an approved stock exchange is limited up to 10%. An MPF scheme must restrict its foreign currency exposure to not more than 70% of its total assets. Employer-sponsored schemes may not have more than 10% of their assets in shares or other securities of, or issued by, the participating employer or its associates.

At least 30 per cent of scheme assets must be denominated in Hong Kong dollars. For an employer-sponsored scheme, it may not have more than 10 per cent of its assets in shares or other securities of, or issued by, the participating employer or its associates. Furthermore, for diversification

³⁶ Employees' relevant income includes wages, salaries, leave pay, fee, commission, bonus, gratuity, perquisite or allowance, but excludes housing allowance or housing benefits.

purposes, not more than 10 per cent of fund assets may be invested in securities issued by any single entity. Not more than 5 per cent of fund assets may be invested in warrants, which are commonly regarded as higher-risk securities. While derivative instruments can be acquired for hedging purposes, they must not be used to leverage the funds.

Monthly minimum return regulation

The MPF system does not provide a guarantee on the minimum rate of return of the investment of the scheme assets.

Valuation

MPF assets are valued in accordance with Hong Kong Accounting Standard ("HKAS") 39 - Financial Instruments: Recognition and Measurement. It basically follows international accounting standard where investments are valued at fair value.

Investment return

The return of the MPF System was calculated using the internal rate of return ("IRR"). The IRR method takes into account the amount and timing of contributions into and benefit withdrawals from the MPF System. The monthly internal rate of return of the MPF System ("monthly IRR") is the discount rate that equates the net present value of all the net monthly contributions made to the MPF System within the one year period to the net present value of the accrued benefits at the end of the year.

$$NAV_0 + \sum_{i=0}^{12-1} \frac{CF_i}{(1 + IRR)^i} = \frac{NAV_{12}}{(1 + IRR)^{12}}$$

Where, NAV_0 is the Net Asset Value of the MPF at the beginning of the year. NAV_{12} is the Net Asset Value at the end of the year. CF_i is the net monthly contribution made to the MPF system minus the amount of benefits paid out from the MPF system in a month. All the contributions made to the MPF System and all the benefits paid out from the MPF System occurred at the beginning of the month³⁷.

The annual return for the MPF System was calculated by multiplying monthly IRR by 12.

Because of the absence of available data on contributions into and benefit withdrawals from MPF funds, returns of different types of MPF funds cannot be calculated by the previous method. They are calculated taking into account the unit price and asset size of each MPF fund at different points in time. This method does not capture the impact of the contributions into and benefit withdrawals from MPF funds

The return ("IR") of a MPF fund for the month t was calculated by dividing the difference between the unit price of the MPF fund at the end of the month t and the unit price of the MPF fund at the end of the previous month t-1 by the unit price of the MPF fund at the end of the previous month t-1.

³⁷ There were altogether 12 net monthly contributions, i.e. $i = 0, 1, 2, \dots, 12-1$.

$$IR_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where, P_t is the unit price of the MPF fund at the end of the month t and P_{t-1} is the unit price of the MPF fund at the end of the month t-1.

JAPAN

Introduction

Japan conducted a major pension reform concerning both public and occupational pension system in 2000. An additional reform introducing occupational defined contributions pension plans was passed in 2001.

Type of system

The public pension system includes the National Pension (NP) program and the Employees' Pension Insurance (EPI) program. Both of them are publicly managed. The National Pension is a non-income-related scheme, providing a flat rate basic income for all citizens. This scheme is financed on a PAYG basis. The Employees' Pension Insurance (EPI) program is an earning-related scheme for private sector employees. It is mandatory complementary regime for all firms with more than five employees and contribution is shared between the employer and the employee. The 2000 and 2004 reforms to the public pension system included both a rise in contributions and a decline in benefits in both programs.

The occupational (or corporate) pension system consists of voluntary private pension plans established by a single or a group of employers to provide additional benefits to their employees. Since April 2002 there are three different legal vehicles for these schemes: Employee's Pension Funds (EPFs), defined benefits pension plans and defined contributions plans.

Employee's pension funds were introduced in 1966. They are established on a voluntary basis and are designed as defined benefit plans. They can be established to contract out of the public earning-related pension scheme (EPI). EPFs provide equivalent benefits of the EPI and supplementary benefits. EPFs may be established by a single employer with more than 500 employees (Single-employer funds), by several employers belonging to the same group with at least 800 employees (Allied-employer Fund) and by association of employers group with at least 3,000 employees. They are defined benefits schemes. The establishment of an Employee Pension Fund is subject to the approval of the Ministry of Health, Labour and Welfare. Approval depends on the fulfilment of several prerequisites, including the consent of at least 50% of full-time employees.

Defined contributions (DC) plans were introduced in 2001, whereas defined benefit (DB) plans in 2002. Both of them provide additional private occupational benefits. DC plans may be established by single employers and must be implemented through a contract with financial institution. DB plans are sponsored by single or group of employers and must be implemented through the establishment of a pension fund or a contract with a trust bank or life insurance company.

The retirement provision also includes several types of personal saving plans. Self-employed are allowed to make voluntary contributions in DC pension plans. They are operated by the National Fund Association. Furthermore, under the new 2001 legislation, self-employed workers and employees whose employer does not offer any EPF, DB or DC pension plan may instead join a new personal DC scheme offered by insurance companies, trust banks or other financial institutions.

Participation in the system

Employer or group of employers in a particular industry can opt-out of the public Employees' Pension Insurance and offer on a voluntary basis an EPF for their employees. EPF regulation must be established with the consent of more than half of the employees (and unions representing at least one-third of the employees). Full-time employees joining an employer with a pre-existing EPF automatically become fund members.

The self-employed workers are not covered.

Contribution

Contributions into the EPF are divided into two parts. The first part is the contribution that substitutes a portion the old-age benefits of the earnings-related public pension system (13.55% to 14.15% of the basic wage). This contribution is equally shared by employers and employees. The second part (rebate for EPF) is the contribution for the additional private occupational pension benefits provided by the EPF. This part is primarily financed by the employer. From April 2003, the rebate for the EPF varies between 2.4% to 3.0%.

Employer and employee contributions are tax-deductible without limits.

Asset managers

All EPFs are independent legal entities governed by a management committee consisting of an equal number of employer and employees representatives. This committee decides whether to manage fund assets in-house or to contract management out to an asset manager. The assets can also be outsourced to the Pension Fund Association, the association of all Employee Pension Funds.

The asset management is generally contracted to a trust bank, life insurance company or investment advisory firm. The management committee can instruct the appointed asset manager concerning the desired level of risk. The responsibilities and duties of asset managers are regulated by the appropriate business law governing their contract with the EPF.

EPFs may also manage assets in-house provided that a plan for the implementation of an appropriate asset management structure has been submitted to the Ministry of Health, Labour and Welfare. An investment plan that regulates the basic investment principles, method of assets valuation and portfolio composition must also be established.

Investment regulation

Since the prudent person principle was introduced in 1998, Japanese pension funds have no longer been subject to investment limits.

Monthly minimum return regulation

EPFs are not subject to any minimum rate of return requirement.

Valuation

Pension plan assets are valued on the basis of the economic or market value of the investments.

Investment return

The nominal investment performance for each EPF is calculated yearly, using the following formula:

$$NR_t = \left(\frac{TR_{t,t-1}}{\overline{TA_{t,t-1}}} \right) * 100$$

Where, NR_t is the nominal rate of return in the year t , $TR_{t,t-1}$ is the total revenue during the period t and $t-1$ and $\overline{TA_{t,t-1}}$ is the average amounts of assets number during the period t and $t-1$.

THE NETHERLANDS

Introduction

Privately managed pension system is very well developed in the Netherlands, thanks to occupational pension plans that ensure a mandatory coverage of over 90% of all employees.

Type of system

The Dutch pension system comprises a statutory social security old age pension system (AOW), an occupational pension system and voluntary individual savings accounts that are typically taken as annuities through insurance companies.

The statutory social security old age pension system is a publicly managed compulsory insurance plan financed on a PAYG basis. It provides all residents of the Netherlands as from the age of 65 a flat-rate pension benefit that, in net terms, equals 70% of the net statutory minimum wage for singles and 100% for a married couple. There is no means test for the eligibility of benefits.

The occupational pension system supplements the AOW state pension, because the Dutch social security system only provides a basic level of retirement benefits. Given that for most employers is mandatory to make pension commitments to their employees, the vast majority of those employed in the Netherlands participate in an occupational pension scheme. Occupational pensions are subject to negotiation between the social partners and have to be financed by capital funding. A pension scheme is part of the employment conditions laid down in an agreement (which may be a collective

agreement). Occupational schemes are almost entirely defined benefit schemes (around 97% of total schemes). Both company pension funds and industry wide pension funds are average salary schemes (90% of total members).

The occupational pension schemes are on a funded basis. According to the Pension and Saving Fund Act (PSW) three ways of administering occupational pension fund exist: by company pension funds, by industry wide pension funds or by insurance contracts³⁸.

- Company-specific pension funds (OPF) are funds set up for the use of accumulating only for the purpose of one company or group of companies.
- Industry-wide pension funds (BPF) are funds –with or without compulsory participation- set up to accumulate capital for a specific sector or industry.
- Life insurance is a life insurance contract between the company of the employer and a life insurance company.
- Pension funds for professional groups which have to do with self-employed professionals within a particular profession (there are only active members and pensioners and no employer).

Smaller companies often provide fully insured pension plans. This can be done by individual insurance contracts or by group insurance contracts. These contracts also often supply pre-retirement death and disability benefits.

The Dutch pension system also includes individual pension provisions not related to the employment, either through annuity insurance or endowment insurance (providing a lump sum) encouraged by tax rebates up to certain limits.

Participation in the system

Participation in an industry-wide pension fund is often determined by a collective agreement or can even declared mandatory by the State. It covers all employees in the respective industry, including private and public-sector employees. A company that does not have to participate in an industry-wide pension fund can choose between funding by an insurance company or setting up a company pension fund of its own.

Participation in occupation pension plans is compulsory for all eligible employees of an employed covered by the collective agreement. Plans rule must not discriminate between employees of the same category, but variations between different categories of employees are allowed. Part-time employees must not be excluded from membership of a plan. The self employed are not covered by occupational pension plans but they may become member of personal saving plan offered by banks or insurance companies.

Contribution

The level of contribution depends on each individual scheme. The employer and employee usually both pay contributions. Most employees contribute on a basis of a percentage of their

³⁸ The pensions and savings fund act (PSW) was replaced in 2007 by the new Pension Act (1-1-2007)

pensionable salary. By 2005, the average employer and employee contribution was 10.8% and 5.3% respectively.³⁹

Asset managers

The governing body of industry-wide pension funds and company pension plans may manage the assets in house or contract the asset management to an asset manager. Credit institutions, including banks, insurance companies or investment companies may be asset managers provided they hold a licence in accordance with the Investment Service Act.

Investment regulation

The Prudent Person Principle is the prevailing investment principle followed by the Dutch pension funds. Risk and return should be well balanced with sound diversification on the portfolio in order to manage risk. The only quantitative regulation concerns the investment in the equities of the sponsoring company, which is limited to 5%.

Investment of industry-wide pension funds are subject to the controls as those of company pension funds describe above, with the exception that investment in the company's own shares is not possible.

Monthly minimum return regulation

Occupational pension plans are not subject to any minimum rate of return requirement.

Valuation

Pension funds assets are valued daily according to their market value.

Investment return

The performance for occupational pension plans in the Netherlands was measured using the Return on Investment (ROI) ratio. To calculate ROI, the investment income is divided by the market value of assets during the previous period. Net on sale of securities is calculated as net profit on sale of securities minus net loss on sale of securities.

$$ROI = \frac{\text{Investment income}_t}{\text{Market value of assets}_{t-1}}$$

³⁹ OECD Questionnaire on occupational pension plans characteristics.

SWEDEN

Introduction

In June 1994, Sweden's Parliament passed legislation replacing the old defined benefit system with a combination of a pay-as-you-go notional defined contribution (NDC) and a defined contribution privately managed financial account scheme. The new legislation took effect in 1999.

Type of system

The Swedish retirement income system is a mixed pension system, combining both a public pension and private pension systems. The public pension system comprises an earning-related scheme and a guaranteed minimum pension for low income people. The earning related scheme consists of a compulsory basic scheme combined with a compulsory funded individual saving scheme.

The compulsory basic scheme follows the notional defined contribution (NDC) model. It is a publicly managed pension scheme financed on a pay-as-you-go basis. Under a NDC model, employees have an individual account that reflects the amount of contributions that they and their employer pay each year⁴⁰. Old age benefits depend of the number of contribution years, life time income and life expectancy t the time of retirement.

The compulsory funded individual saving scheme is the Premium Pension System. It is a defined contribution scheme with individual accounts where pension benefits are based on individuals' savings accumulated during their working lives. Participants can invest their contributions among a wide variety of investment alternatives managed private mutual funds companies⁴¹. The regulatory framework established a new government pension agency, the Premium Pension Authority (PPM), which administer the system and act as a clearinghouse and record keeper for the funded individual account system.

The private pension system, on the other side, includes the occupational pension scheme and individual retirement arrangement.

The occupation pension system consists of privately managed schemes based on national-wide collective agreement between the employer and employee organization. These schemes are known as ITP white-collar employee and SAF-LO for blue collar employees. The ITP scheme is based on a defined benefit approach and can be implemented though pension insurance, book reserves or pension funds. SAF-LO pension schemes are introduced as defined contribution plans and are implemented though an insurance contract with an insurance company. Employers who not part of the collective agreements may offer plan on a voluntary basis.

⁴⁰ Individual accounts are notional accounts, meaning that they serve a bookkeeping purpose only. No assets are actually deposited in the account as contributions are immediately used to fund benefits for the current pensioners. The NDC accounts earn a rate of return that is usually linked to economic factors.

⁴¹ A participant may choose a maximum of 5 different funds. If a participant fails to make an active choice, the pension savings will be invested in a stated owned National Swedish Pension Fund

Additional private retirement provision can be made using individual retirement arrangements, where employees contribute to private pension plans, usually on a defined-contribution basis. The contribution can be paid to pension insurance, bank or other financial institution.

Participation in the system

Participation in the NDC plan and the Premium Pension System is mandatory for all employees and self-employed age sixteen and older.

Participation in occupation pension plans is compulsory for all eligible employees of an employer covered by the collective agreement. The self-employed are not covered by occupational pension plans but they may become member of personal saving plan offered by banks or insurance companies. .

Contribution

The total contribution rate to the publicly managed earning-related system is 18.5% of taxable income up to ceiling of approximately 1.5 times the average wage, of which 16% is credited to toward the individual notional account and the remaining 2.5% is contributed to the fully-funded individual account. Contributions are intended to be split equally between employees and employers. Contributions for both systems are collected centrally by the National Tax Authority.

Contribution to the occupational pension plans varies significantly between schemes. The contributions are typically between 2 and 5% of wages. For ITP schemes the contribution rate depends on factors such as age, salary level and amount of accrued rights. For SAF-LO scheme the contribution is typically 3.5%.

Asset managers

Individual accounts under the Premium Pension system are managed by private, specialized mutual funds companies. A fund management company is an independent legal entity in which the financial position of the company is entirely separate from the funds which it manages. In the majority of cases, fund management companies are owned by banks, insurance companies or privately-owned companies. Mutual funds companies are under the supervision of the Swedish Financial Supervisory Authority (SFSA) and must have obtained approval from the SFSA in order to a mutual fund.

The fund management company is responsible for all administration and management of the funds including book-keeping, NAV calculation, risk control and asset management. A fund management company can choose to outsource sections of its operations (administration and asset management). The fund management company is to contract custody for depositing its managed assets.

Fund companies that wish to participate must sign a contract with PPM covering the fee structure and reporting requirements. To limit the number of funds, the manager of each fund originally could only register up to fifteen funds. Corporate groups that had several fund management companies could register up to twenty-five funds. These limits were raised to twenty-five funds per company and fifty per related group when two Swedish fund providers merged.

The asset management of occupational pension schemes vary according to the type of scheme. For ITP schemes implemented through insurance plans, plan assets are managed by an insurance company, ALECTA. Plans implemented through pension funds are allowed to manage their own assets.

Asset of the pension funds are kept separate from the assets of the sponsoring employer. External investment managers are not required by law. Plan asset of SAF-LO schemes are managed by an insurance companies chosen by the member.

Investment regulation

There are no specific investment regulation beside the Prudent Person Principle and the solvency requirement for mutual funds companies in the Premium Pension System.

The asset management of insurance companies follow some quantitative limits that are mainly diversification requirements. The investment regulation set a maximum of 25% in quoted equities and 10% in non quoted equities. Investment in real estate is limited to 25%. There is no specific limit for government bonds, although other type of bonds is limited to 70%. Bond deposits are limited to 25%. There is no limit for investment in foreign securities. Diversification conditions required that no more the 5% of the total assets can be invested in shares and bonds issued by a single company and no more than 10% in a single investment fund.

Monthly minimum return regulation

The Premium Pension System and the occupational pension plans are not subject to any minimum rate of return requirement.

Valuation

Pension funds assets are valued daily according their market value.

THE UNITED KINGDOM

Background

The United Kingdom was one of the first countries in the world to develop formal private pension arrangements (beginning in the 18th century) and was also one of the first to begin the process of reducing systematically unfunded state provision in favour of funded private provision. The present pension system in the UK is the result of a long series of reforms introduced in the last three decades.

Type of system

Under the UK pension system public and private sources of benefits for the elderly are combined with each other.

The public pension system consists of a Basic State Pension and the State Second Pension or S2P. Both pension schemes are financed on a PAYG basis and managed by the State. The Basic State Pension provided flat rate benefits. It is compulsory for employees and self-employed workers with earnings above a specific threshold. The S2P was introduced in April 2002 and replaces the State Earning-Related Pension Scheme (SERPS), which was introduced in 1978. It is compulsory for all employees who are not contracted-out into an occupational or personal pension scheme. The S2P is earnings-related but from April 2007 becomes a flat-rate benefit, even though contributions are earnings-related, a feature that is intended to provide strong incentives for middle- and high-income

earners to contract out. Finally, in October 2003, the Government introduced a new mean tested for pensioners, the Pension Credit.

The private pension system consists mainly in occupational pension schemes. They tend to be established by a single employer or group of employer to provide pension and other benefits for their employees when they leave or retire. Occupational pension schemes are usually defined by the type of benefit they provide. There are three main types: defined benefit schemes; defined contribution schemes; and hybrid schemes (mixture of defined benefit and defined contribution schemes). Traditionally, pension schemes were defined benefit type, providing a pension of a guaranteed level related to final pensionable salary. However, the coverage of defined benefit schemes is declining and most new schemes have taken the form of defined contribution schemes⁴². Occupational pension schemes are operated by employers on a voluntary basis. The employer is free to choose whether to set up an occupational pension scheme. An employer may sponsor more than one scheme, each of which will be operated independently. Employees who work for the employer may join the occupational pension scheme on a voluntary basis, although membership may be restricted to certain categories of employees.

Since 2001, employers with more than five or more employees have been obliged to provide their employees with access to a Stakeholder Pension scheme. Only companies with already provide an occupational pension scheme or contribution to a personal pension of a specific level, are expect to offer this type of scheme. It is a fully-funded and defined-contribution scheme, where contributions are paid by the employees only.

A further opportunity for employees is to choose personal pension plan. They were introduced in 1988 as arrangements which the employee can establish individually with an external provider. These schemes are increasingly being provided by employers as occupational schemes. All personal pension plans are on a defined contribution basis.

The private pension system also includes personal and voluntary retirement schemes. There are two main types of personal pension in the UK, Personal Pension Plans and the Stakeholder Pensions. Personal Pension Plans are offered by banks and other financial institutions. Stakeholder Pensions schemes are run by trustees or schemes managers who are authorizing by the Financial Service Authority. Both of them provide benefits based on the defined contribution principle.

Participation in the system

Participation in the occupational pension schemes can in a sense be seen as compulsory for all employees, since if an employee is not a member of a contracted out occupational or personal pension scheme they are covered by the supplementary pension scheme S2P. However, as S2P is an integral part of the social security scheme it has been described as part of the public system.

Employer may on a voluntary basis offer an occupational pension scheme for some or all their employees. Employer may also participate on a voluntary basis in industry-wide pension plan. Employers who do not provide an occupational pension plan or a personal pension plan must offer access to stakeholder pension plan. Employees may choose to join the occupational pension scheme provided by their employers or opt instead to contribute to a personal pension plan.

⁴² 'Occupational Pension Schemes 2004: The twelfth survey by the Government Actuary', published June 2005.

The self employed and an individual employees who are not member of an occupational pension plan may voluntarily establish personal pension plan.

Contribution

Occupational plan schemes can be contributory or non contributory. Funding is normally shared between the employer and the employees, although some schemes are financed exclusively by the employer. The plan rules determine whether the employee contributes and at what rate.

The level of employer and employees contributions to the scheme varies between schemes. In defined benefits plans, the employers pay either a fixed percentage of the employee's earning or whatever is need according to the actuarial valuation to ensure the plan has sufficient assets to meets its liabilities, while the employee contributions are generally fixed throughout the member's working life. In defined contributions plans, the employer and the employees pay an agreed fixed percentage or earnings. According to a survey carried out in 2004 by the Government Actuary's Department (GAD), the weighted average contribution in defined benefit schemes was 4.3% for employees and 14.5% for employers. Contributions to defined contribution schemes were lower, at 2.9% for employees and 6.0% for employers⁴³.

Since 1988, all schemes have had to offer a facility for active employees to make additional voluntary contributions (AVCs), allowing them to secure benefits over and above those normally provided by the scheme. Total personal contributions, including AVC, cannot exceed the Inland Revenue limit of 15% of annual earnings.

Asset managers

The majority of occupational pension schemes are set up under trust law. The trust fund must be maintained separately from the assets of the sponsoring employer. The trust serves three functions: it is the primary source of payment of pension entitlements; it is a security for payment; and it is a vehicle for the collective protection and enforcement of the rights of individual scheme members.

The management of contributions and benefit administration may be undertaken by employees of the trust or it may be contracted to a pension management company or financial institutions by the trustees. The pension management company may be a bank or an insurance company.

Financial institutions such as insurance companies, banks and mutual funds are authorized to offer personal pension plans. Employers may also enter into an agreement with a personal person provider whereby the employer arranges for the employees to take out a personal pension plan. These plans are known as group personal pension (GPPs).

Investment regulation

Act requires trustees to prepare and maintain a Statement of Investment Principles (SIP). The SIP specifies the strategic objectives of the pension fund and must cover the kinds of investments held, the balance between different kinds of investments; the risk and the need for the diversification of investments, the expected return on investments; and the realization of investments.

In preparing the SIP, the trustees are required to take written advice from a person who is reasonably believed by the trustees to be qualified by his ability in and practical experience of

⁴³ <http://www.gad.gov.uk/Publications/docs/Final%20Report%2016Jun2005.pdf>

financial matters and to have the appropriate knowledge and experience of the management of the investment of such schemes.

There are no specific investment restrictions beside the Prudent Person Rule. The only restriction limits the investment in the sponsoring company to 5% of plan assets.

Monthly minimum return regulation

Private pension schemes are not subject to any minimum rate of return requirement.

Valuation

Pension assets are included at their fair value on the company's balance sheet date.

Investment return

Occupational plans employ the "time-weighted" rate of return as the base performance statistic⁴⁴. This return takes into account investment income as well as realised and unrealised capital profits or losses. The use of this statistic minimises distortions due to cash flows into and out of a portfolio, which are, in general, outside the control of the investment manager.

The time-weighted return on the Total Fund over the quarter is calculated by compounding rates of return obtained for each month. These returns are calculated using the market value of the Total Fund at the start and end of the month and Net Injection details, adjusted where appropriate for tax deducted. For intermediate months the market values are estimated by summing the individual sector estimates

The investment return is measured through the Total Fund Median. It is the middle result or 50th percentile of the returns from all the UK Pension Funds at the total level. This means that this return is irrespective of fund size.

THE UNITED STATES

Introduction

The United States currently has one of the most extensively developed and complex private pension systems. Although its origin precedes the introduction of Social Security, the private pension system has become an essential supplement of the public social insurance program.

Type of system

The publicly managed Social Security system is a defined benefit PAYG system financed by general taxes and operated at the national level. Although in general benefit formulas are based on life time earnings there is also a minimum benefit that is effectively set at the poverty level.

⁴⁴ Information on investment return was provided by The Mellon Analytical Solutions.

The private pension system is completely voluntary and operates nearly exclusively in the context of employer sponsored arrangements. There are essentially two types of private pension plan arrangements, plans which are sponsored and administered by a single entity, known as single employer plans, and plans which cover workers at a number of companies in a common industry which are known as multiemployer plans. The sponsoring employer has complete control over the nature of benefits and administrations of the arrangements.

Employer sponsored arrangements can be defined benefits (majority of existing plans) or defined contributions (most new plans). However, the proportion of private sector employees covered by defined benefit plans have declined because most large employers have switched to defined contributions plans. Defined benefits plans are almost always funded by employer contribution while the majority of defined contributions plans are funded through employee contributions. Many defined contributions plans permit employees to make before-tax contributions from their salaries. These arrangements are commonly referred to as 401(k) plans. Many sponsors of these plans make employer contributions by matching some portion of employees' elective deferrals.

The privately managed pension system also includes voluntary individual retirement arrangements (IRAs). They are defined contribution schemes which may be established by individuals in the form of either an individual retirement account or an individual retirement annuity. Some employer-sponsored plans may be implemented through IRAs.

Participation in the system

Employer may establish voluntarily a complementary occupational single pension plan for their employees. They may be set up at the discretion of the employer or as the result of a collectively bargained agreement. The plan sponsor decides what type of plan establishes. Sponsoring employers have the flexibility in determining who will be covered under a plan and can create different plans for different groups of employees.

Participation of employer in industry-wide pension plans is determined by a collective labour agreement between organizations representing several employers and unions. They operate under the same regulations as single pension plans.

Self employed and individual employees may only establish Individual Retirement Arrangements with an IRA provider.

Contribution

Defined benefit pension plans are usually non contributory, and therefore the employer bears the entire cost of the pension plan. The employer's contribution rate is estimated using economic and financial assumptions. These assumptions include the average retirement age, life expectancies of the employees and returns earned by the pension plan's investments.

Defined contributions plans are usually contributory. Employees are the main source of funding, and employer contributions play a secondary role. The contribution rate varies between schemes. According to a recent survey, in 2005 the average participant contribution rate was 7.31%⁴⁵ of their income. Employer contribution in 401(k) plans depends on the employee contributions. The proportion of the employee contribution matched by the employers depends on plan rules.

⁴⁵ Vanguard, 2006. "How America Saves 2006: A Report on Vanguard 2005 Defined Contribution Plan Data". Vanguard Center for Retirement Research.

Asset managers

Occupational pension plans must be implemented under a trust agreement or through an insurance contract. Under a trust agreement, all assets of pension plans are required to be held by a trust which is a separate legal entity distinct from any other assets of the sponsoring employer or organization. In a single employer plan, the sponsoring employer usually retains the authority to appoint the trustees of a pension fund. In multi-employer, plan trustees are jointly appointed by the participating employers and employee organization. The trustees may manage the assets or contract it to a pension management. Asset managers may be an investment adviser, a bank or an insurance company qualified to provide asset management service. Pension management companies are subject to ERISA pension regulation.

In the case of plans implemented through insurance contracts, the insurance company manages the contribution and benefits administrations. The establishment and operations of insurance companies are subject to the law of the state where the insurance company is located.

Investment regulation

The responsibility for formulating the general investment strategy for plans rests with the trustee. In the case of plans implemented through insured contracts, the insurance company manages the assets.

Investment regulation specifies that the Prudent Person Principle is the prevailing investment principle in private pension schemes. This means that the U.S. law neither requires nor prohibits any specific kind of investments. There are generally no maximum or minimum percentages in any category of assets or prohibitions of any individual category of investment. The prohibitions that are imposed relate primarily to conflict of interest between the plan and parties. In this context, General requirement for diversification

Monthly minimum return regulation

Occupational pension plans are not subject to any minimum rate of return requirement.

Valuation

Pension assets are included at their fair value on the company's balance sheet date.

Investment return

Nominal returns (NR_t) for DB and defined DC plans were calculated as the change in assets ($A_t - A_{t-1}$), netting out the impact of benefit payments from the plan (B) and contributions to the plan (C), to initial assets (A_{t-1}) plus half of net inflows ($C - B$). Rates of return presented were weighted by plan assets, and then identified the median.

$$NR_t = \frac{(A_t - A_{t-1}) + B - C}{A_{t-1} + \frac{1}{2}(C - B)}$$