THE IMPACT OF THE FINANCIAL CRISIS ON FUNDED PENSION SAVING

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A key fiscal risk presented by the current financial crisis is its effect on retirement saving. A broad array of retirement plans – public and private, collective and individual – have accumulated a large stock of financial and real assets in recent years that will be used to finance future pension benefits (Figure 1). The level of funding has increased not only in nominal terms, but also as a share of aggregate GDP, with the increase stemming from earnings on existing retirement saving as well as net deposits (contributions less benefits). Deviations from this trend since 1995 occurred in 2000 and 2002. In each of these cases, equity markets were also in decline, more than offsetting the positive returns on some other assets and net contributions (contributions less distributions). The reduction in equity prices that started in 2007 accelerated during 2008. Figure 2 presents indexes of total returns on two broad-based U.S. equity indexes. The indexes equal the value of a $100 investment in each of the portfolios at the end of October 2007, when each portfolio reached its end-month peak. The value of the Dow Jones Industrial Average fell by roughly one-third, and the value of the more broadly based S & P 500 portfolio (and other broad-based portfolios) fell by more than two-fifths. In U.S. dollar terms, European and emerging market equities have fared even worse, although that is likely an exchange-rate artifact (they fared much better in dollar terms before the decline began).

1 Impact of the recent stock market decline on pension fund assets

1.1 Distribution of assets, end-2007

The impact of the stock market on the assets of a pension fund depends on (1) the share of equities in the fund's portfolio and (2) the performance of the particular equities held by the fund. Figure 3 displays pension fund assets at the end of 2007 for those G20 countries for which data are available, as well as several other countries for which data are available. Six countries – the United States, the United Kingdom, Canada, Netherlands, Australia, and Switzerland – accounted for roughly 90 per cent of total pension fund assets. In each of these countries, pension assets equaled at least 90 per cent of GDP, and equities comprised at least 40 per cent of aggregate fund assets. For all countries combined, direct investments in equities comprised almost 45 per cent of total assets, and investments in mutual funds, in which equities play a predominant role, accounted for another 19 per cent.

Figure 3 demonstrates how important equities have been to pension saving, both in the aggregate and for the countries with the largest stock of pension assets. The impact of the stock market declines on a particular country will also depend on how steeply stock prices have fallen in that country (assuming a significant home country bias) and how significant total pension saving is relative to the size of the economy. Figure 4 categorizes countries according to these two variables, as well as the share of equities in pension saving. The domestic stock markets of almost all of the countries have declined by more than one-third. However, only 15 of the 41 countries for which data are available have *either* more than 50 per cent equities in their pension portfolios *or* pension assets greater than 50 per cent of GDP. Only four have all three of these characteristics, but these

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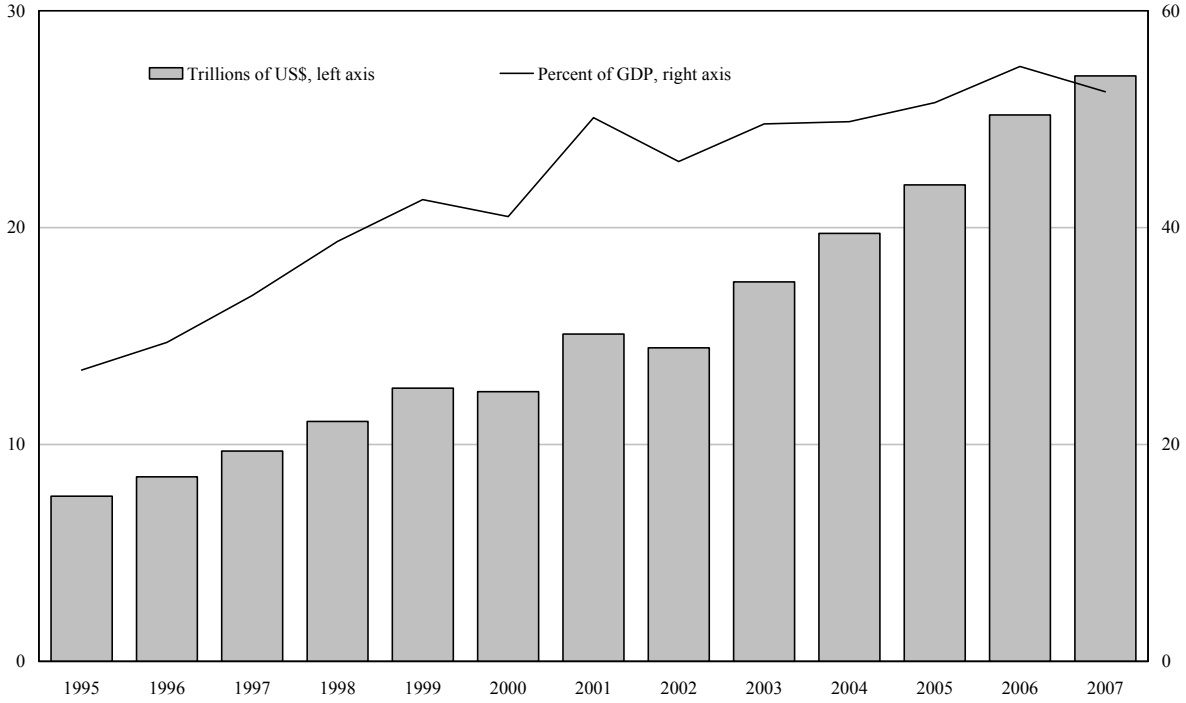
The views expressed in this paper are the authors alone and do not necessarily reflect the views of the International Monetary Fund.

Figure 1

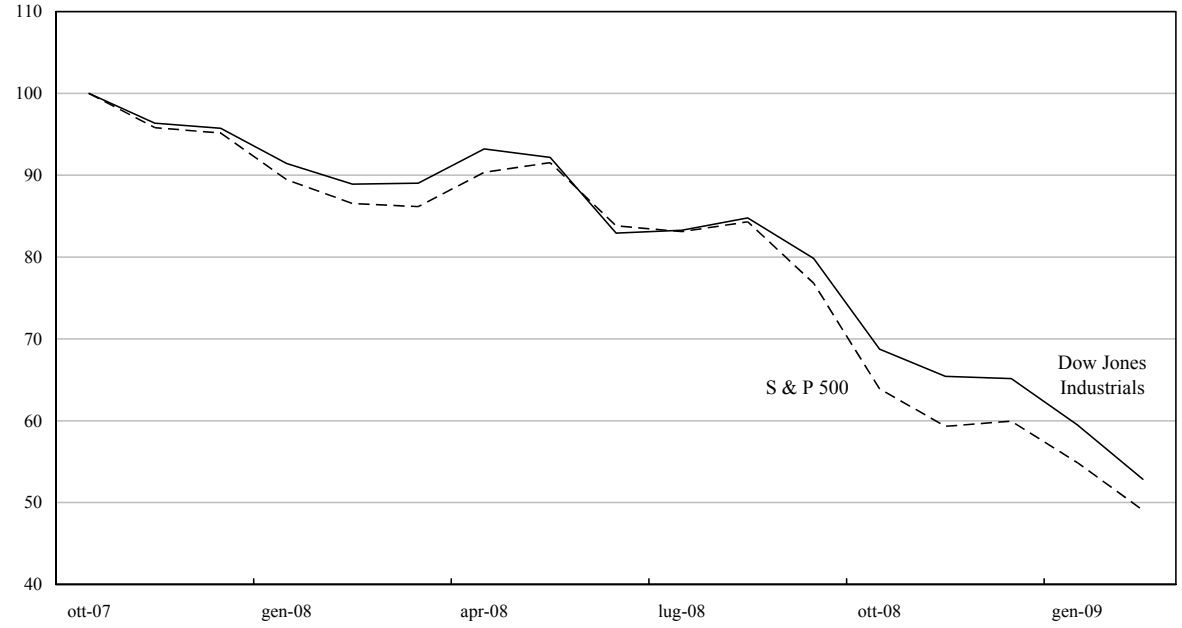
Pension Fund Assets in OECD Countries, End-year 1995 to End-year 2007



Note: Totals include both public and private plans.
Source: OECD Global Pension Database; and staff estimates.

Figure 2

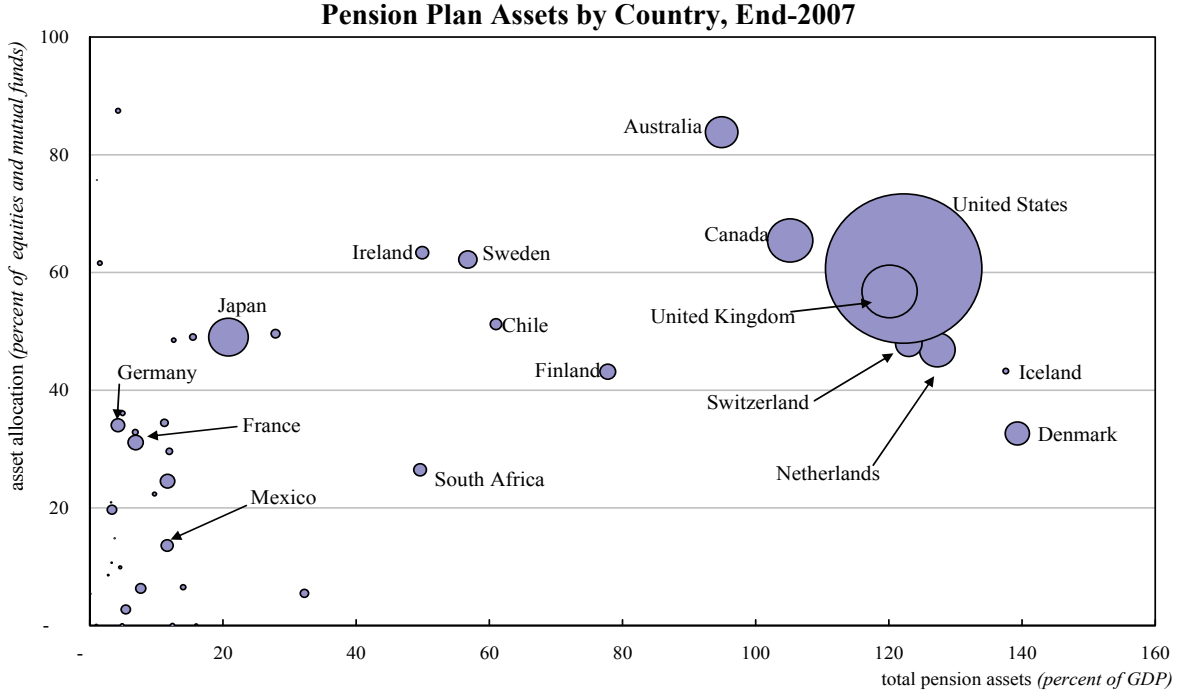
Total Equity Return Indexes, End-October 2007 to End-November 2008



Source: Haver Analytics.

Figure 3

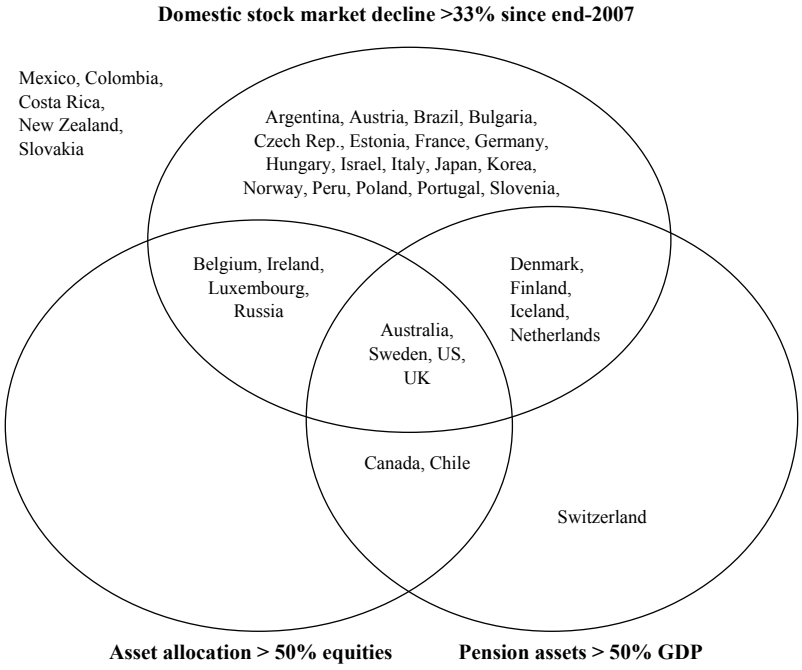
Pension Plan Assets by Country, End-2007



Source: OECD Global Pension Database; and staff estimates.

Figure 4

Pension Fund Assets by Country, End-2007

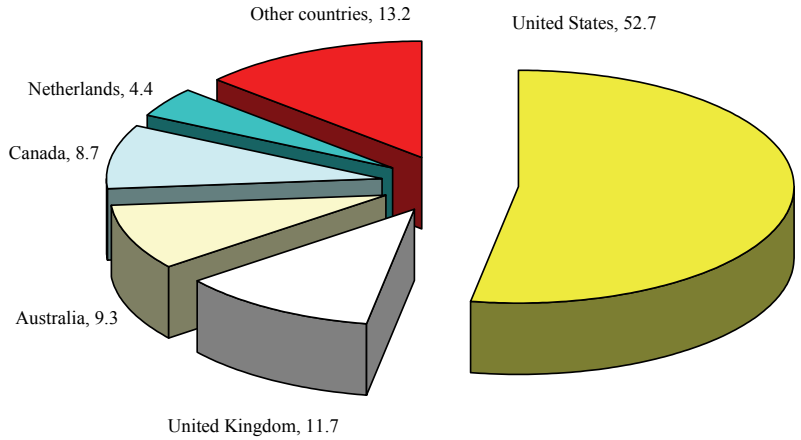


Source: OECD Global Pension Database; and staff estimates.

four countries account for over 80 per cent of pension saving.

Figure 5

Distribution of Equity Losses



Source: OECD Global Pension Database and staff estimates.

1.2 Estimated equity losses

Applying the domestic stock market decline through November 2008 to the equity and mutual fund holdings for each country as of end-2007 yields a rough estimate of the impact of the stock market declines on global pension assets. The aggregate loss from the fall in domestic equity markets was roughly 36 per cent (Appendix, Table 1). In addition, however, European and emerging-market countries have had additional losses in dollar terms due to an exchange rate depreciation of 15 per cent. The total estimated reduction in the aggregate dollar value of equities and mutual funds is 43 per cent or $6.7 trillion. In absolute terms, these losses are concentrated in the countries with the largest holdings. Losses in the United States are roughly $3.5 trillion, representing more than one-half of the total (Figure 5). Other countries with large aggregate losses include the United Kingdom ($0.8 trillion), Australia and Canada (both at roughly $0.6 trillion).

Another important consideration is what the distributional incidence of these losses is likely to be. Among people over age 65 in the United States, for instance, funded pensions and annuities account for 21 per cent of income of the richest income quintile, but just 3 per cent for the poorest (Burtless, 2008). In the U.K., occupational pensions comprise over 30 per cent of income for the richest quintile of pensioners and only 1 per cent for the poorest. Most European countries rely almost entirely on pay-as-you-go, defined-benefit pension schemes. In a few countries, however, funded plans cover a larger share of the retirement income of lower-income pensioners. For instance, all participants in the Chilean pension system invest in individual accounts, although the government does guarantee a minimum pension level. Where pay-as-you-go systems are (partially) funded or augmented with defined-contribution plans, the benefits from these defined-contribution plans are often guaranteed by the government. Consequently, lower-income households will be relying primarily on faith and credit of their governments either to honor their pay-as-you-go promises (see below for a discussion of the difficulties with this option) or compensate them for losses on their defined-contribution schemes that reduce benefits below a specified minimum. Absent significant cuts in government-provided or government-guaranteed benefits, the distributional incidence is likely to be – for the most part – benign.[1]

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[1] A separate risk is pension fund exposure to potentially "toxic" assets, such as mortgage-backed securities and credit default swaps. The OECD has estimated average holdings of 3 per cent of such assets in the portfolios of pension funds that member countries have (OECD, 2008). Structured products – the class of assets within which toxic assets fall – represent about 8 per cent of pension fund assets worldwide. The risk is concentrated in the U.S., Sweden, and Japan.

2 Short- and medium-term responses

An array of economic agents will have to respond to the decrease in pension saving. These responses will depend on how persistent the fall in stock prices is. For this reason, it is useful to distinguish short- and medium-term responses for longer-term responses. These responses can be distinguished depending on whether the plan is defined-contribution or defined-benefit, what entity sponsors the plan, and whether a more broad-reaching government response – with attendant fiscal implications – is appropriate. (In all cases, individuals have the option of adjusting their rate of retirement saving to offset the effects of financial markets on the assets of the official pension plans in which they participate).

2.1 Unprotected defined-contribution plans

For unprotected defined-contribution plans (representing roughly three-quarters of defined-contribution assets), neither the pension plan itself nor the plan sponsor provides any guarantee with respect to the rate of return or the size of benefits. Consequently, the impact of the recent fall in the stock market will fall directly on the individual participant. Of the reported $9.4 trillion invested in unprotected defined-contribution plans as of the end of 2007, $8.0 trillion were in U.S. funds. Roughly $6.8 trillion were, in turn, held in personal accounts, with the remainder in employer-sponsored 401k and similar type accounts. As noted above, these accounts are held primarily by higher-income households, and their responses will likely depend on their age. Younger workers have the luxury of waiting to see if the market recovers. These workers suffered similar losses between 1999 and 2002, but the market had recovered almost completely prior to the recent relapse. Older workers, on the other hand, have less time to recover and are likely to suffer more severe cuts in retirement income. This is especially true if workers would like to purchase annuity with at least some of their retirement saving. The depressed value in their accounts, combined with low interest rates, will make the purchase of annuities far less attractive.

To evaluate the impact of a financial crises on individual retirement saving in the form of equities, we simulate the performance of individual accounts over the past 45 years. We assumed that workers made regular investments in an S&P 500 indexed fund over a 40-year working life. Two profiles of real deposits were simulated, one in which a constant $1,000 is invested each year and one in which the deposits grows smoothly from $667 in the first year to $1,333 in the last year. The only variable within these two profiles is the S&P rate of return, which is allowed to follow its historical path. The results of the simulation are displayed in Figure 6, where the horizontal axis displays the year in which the worker retires.

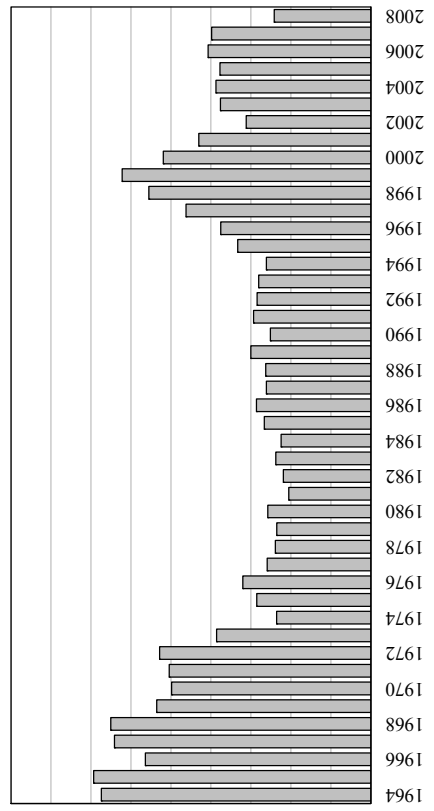
As Figure 6 demostrates, there is a huge amount of inter-cohort variation. The value of the accounts vary from $123 thousand to $400 thousand for the level deposit profile. The variation is comparable for the growing deposit profile ($103 thousand to $347 thousand), although the levels are slightly lower because the a larger share of the deposits occurs later in a worker's career. The real internal rates of return (IRRs) earned on the deposits (the single rate that yields the same account total) show similar variation, ranging from 4.9 to 9.4 per cent for the level deposit profile (4.6 to 9.5 per cent for the growing deposit profile). It is interesting to note, however, that the minimum IRR is over 4.5 per cent in both cases. Moreover, despite the meltdown in the S&P 500 over the past 1½ years, workers retiring at the end of 2008 did not have the worst individual-account performance. In other words, even though the individual accounts produce "lucky" and "unlucky" cohorts, they still provide a reasonable rate of return even for unlucky cohorts.

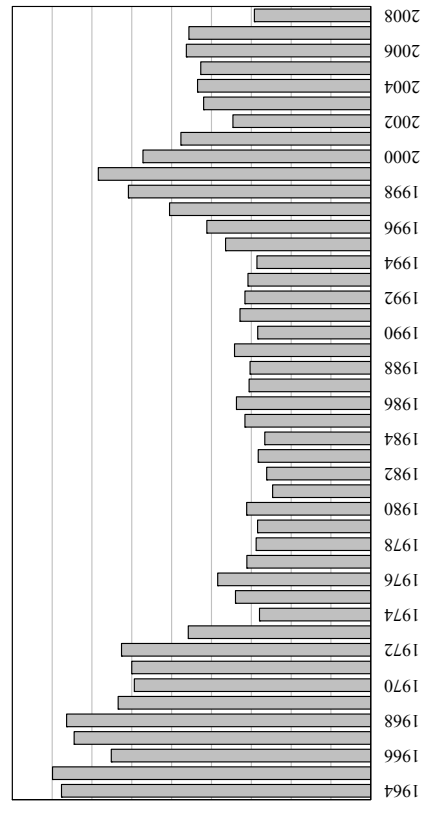
Figure 6

Variation in Performance of Individual Retirement Accounts

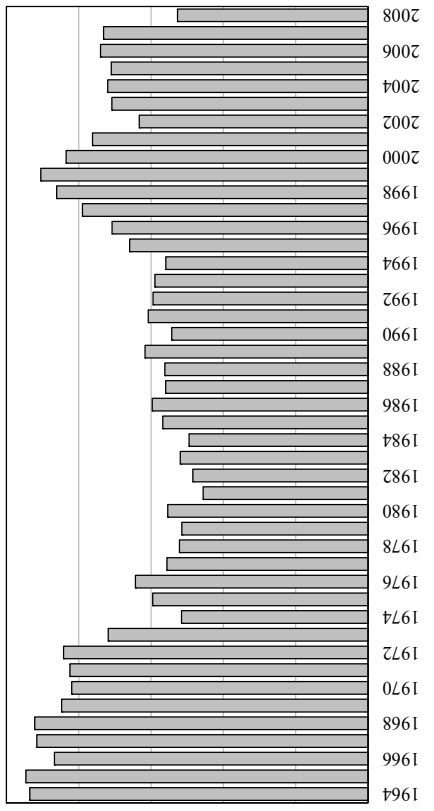
Equal Real Annual Deposits of $1,000 **Real Deposits Double over Working Life from $667 to $1,333**

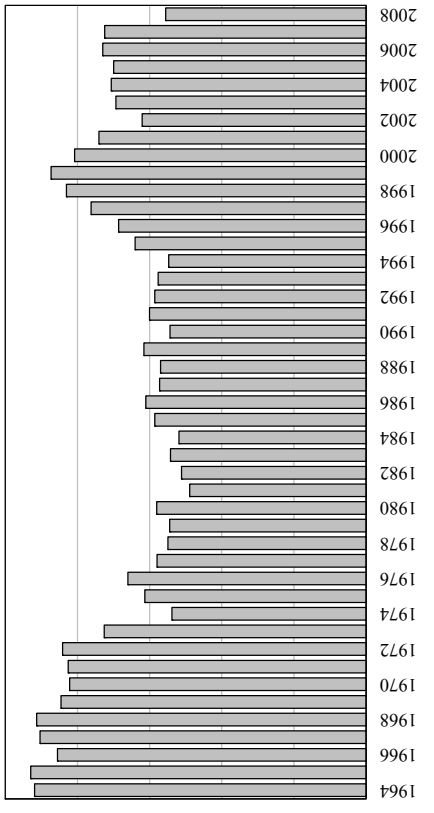
Value of Individual Retirement Account at Retirement *(thousands of dollars)*





Internal Rate of Return on Deposits *(percent)*





Note: Retirement accounts cumulate over 40-year working life with returns equal to historical total returns on S&P 500 portfolio. Label on horizontal axis identifies the final year of contribution.
Source: Haver Analytics and staff estimates.

2.2 Private-sector defined-benefit and protected defined-contribution plans

For these plans, the benefit risk is shared in a variety of ways, depending upon how the plan is structured (OECD 2005):

- "Traditional" DB plan: a DB plan where benefits are linked through a formula to the members' wages or salaries, length of employment, or other factors. In this case, the plan sponsor bears the "rate-of-return risk" – that is, the risk that contributions plus investment returns will be insufficient to cover benefits – but the participant bears the risk that the sponsor will default if it cannot afford the benefits.
- "Hybrid" DB plan or protected DC plan: a DB plan where benefits depend on a rate of return credited to contributions, where this rate of return is either specified in the plan rules, independently of the actual return on any supporting assets (e.g. fixed, indexed to a market benchmark, tied to salary or profit growth, etc.), or is calculated with reference to the actual return of any supporting assets and a minimum return guarantee specified in the plan rules. In this case, the plan sponsor and participant share the rate-of-return risk when it is tied to a market rate or the guarantee applies to benefits, and, again, the participant bears the default risk.
- "Mixed" DB plans: a DB plan that has two separate DB and DC components but which are treated as part of the same plan.

For defined-benefit plans sponsored by private employers, funding rules determine the response, which typically comprises the extent and timing of increase in contributions by sponsoring employers and the degree to which benefits can be reduced or are conditional:

- Rules for Underfunding: Typically, the strength of the guarantee from the sponsoring agency is correlated with the extent of financing provided. The responsibility for closing the funding gap rests largely with the sponsoring agency if the benefits are underwritten by them (Austria, Canada, Ireland, Japan, Portugal, United Kingdom and United States). In countries where the plans are not as strongly tied with the employer and usually underwritten by insurance companies, the burden sharing is generally more flexible (Denmark, Germany, Iceland, Netherlands, Sweden). Nonetheless, even in the former group of countries, the risk can be shared with the members through, for instance, cuts in non-accrued benefits (United States) or accrued benefits with agreement with labor support (Japan).
- Rules for Plan Termination by Solvent Employer: In more severe case of underfunding, with the approval of the pensions regulator, the plans may be terminated by solvent employers. In such a case, detailed rules specify actions such as transfer of the accounts (Austria, Finland, Iceland), purchase of annuities (Canada, the UK, the US), "freeze" of the plan (US), and allocation of assets to members and beneficiaries.

To avert the wind-up of plans, there are increasing demands for temporarily amending the funding rules. Since the requirements for increasing contributions comes precisely at the time of a liquidity crunch faced by companies, several countries are already considering relaxing the time required for making up shortfalls (Canada, USA), valuation methodology, and preventing a freeze of plans. Concerns remain, however, that such a relaxation would affect the long-term health of the plans adversely affecting members and the government in the future.

2.3 Defined-benefit and protected defined-contribution plans for government employees

Pension plans sponsored by governments for their employees represent a sort of "halfway house" between private employer-sponsored plans and national social insurance. This is especially true for pension plans sponsored by subnational governments, where the distinction between social insurance and an employer-sponsored pension plan is typically more sharply drawn. Government

sponsors have a broader menu of possible responses since they can draw on the future taxing power of the government in response to financial market developments. The government options for reform are also different, since they will typically depend on specific legislation rather than a generally applicable regulatory structure.

These plans are important. For instance, as of the end of 2007, almost $4 trillion were held by federal, state, and local government defined-benefit pension plans in the United States (almost one-third of the assets held by occupational pension plans worldwide and more than one-fifth of total U.S. pension assets). The value of these assets had fallen by roughly $1 trillion dollars by October 2008 (Munnell, et al. 2008). Three-quarters of these assets are held by state and local pension plans, which are typically subject to stringent funding requirements. The recent drop in equity prices will trigger requirements to close the resulting funding gap (on a mark-to-market basis, the estimated aggregate funding ratio fell to 65 per cent in October 2008).

3 Central government responses

The responses of the central government fall into four categories:

1) Plan sponsor for national social insurance programs – National social insurance pension plans hold significant assets (Table 2). In some cases, these assets are specialized and largely impervious to financial market movements. (In the United States, the social security system holds $2 trillion in "Treasury specials," which are non-marketable government bonds that can be redeemed at par at any time, that offset a small portion of the present value of future cash flows.) However, in other countries, such as Canada, the Netherlands, New Zealand, and Norway, the national pension system holds a substantial quantity of marketable securities, including equities. The recent decline in financial markets will present these countries with the same challenges faced by private- and public-sector employers. Since national pension systems are not typically fully funded (Norway is a notable exception), the percentage impact on the pension systems will be smaller. This fact provides scant relief, however, since most national pension schemes face significant pay-as-you-go funding shortfalls absent reform.

   Chile is a special case, in which the national social insurance program has been transformed into a system of funded individual accounts. The government guards against risk by providing holders of individual retirement accounts with a choice of portfolios, with one portfolio specifically designed to shield risk for workers near retirement. This "E portfolio" had losses of only 1 per cent over 2008.

2) Pension plan guarantor – A number of countries have pension fund guarantee schemes that offer insurance against the loss of assets in private defined-benefit plans due to employer insolvency. Implemented in 1961, Sweden's guarantee scheme is the oldest and has been followed by the United States (1974), Germany (1974), Ontario, Canada (1980), Switzerland (1986), Japan (1989), and most recently, the United Kingdom (2005). Premiums collected from employers are based on some combination of a flat rate per member, the size of unfunded liabilities, and, in Sweden and the United Kingdom, the risk of sponsor default. The schemes also collect income from investments, which are mostly in fixed-income securities. Equities generally represent less than a third of investment assets across countries. In case of employer insolvency, benefits range across countries, with the United States, United Kingdom, Sweden, and Germany offering relatively higher amounts.

   Partly due to low pricing of premiums, weak funding rules, and limited adjustment for plan sponsor risk, guarantee schemes in the United States, United Kingdom, and Ontario, Canada were in deficit in 2008. The U.S. Pension Benefit Guaranty Corporation (PBGC), which covers 44 million workers, currently has a projected deficit of $11.1 billion in net present value terms.

The smaller Ontario Pension Benefit Guarantee Fund (PBGF), which covers 1 million workers, currently has a deficit exceeding $CAD 100 million. Just three years since its inception, the deficit in the United Kingdom Pension Protection Fund (PPF) stands at 500 million pounds.

The current financial crisis has yet to lead to widespread claims on the guarantee schemes; however, it is possible that the current systemic shock may overwhelm those already in deficit and require government intervention. As a federal corporation, the PBGC represents a sizeable contingent liability to the federal government. Already, the U.S. Congress on December 11, 2008, rolled back part of the Pension Protection Act of 2006, which increased the funding requirements of underfunded plans. (In the United States, however, PBGC benefits are limited to the income and assets of the guarantor agency. Consequently, a surge in defaults would trigger reduced benefits and place additional pressure on the government to allocate additional resources to the agency.) While Ontario's PBGF is not explicitly backed by government, the fund has borrowed money on two occasions: in 1988, it received a $CAD 22 million loan when an automaker failed and in 2001, it received a $CAD 330 million loan when a large steel company did. The United Kingdom's PPF is not explicitly backed by taxpayers. However, should the balance on these schemes substantially deteriorate further, it appears likely that government financial support may be forthcoming.

In addition to creating pension plan guaranty agencies, some governments also guarantee minimum benefits or minimum rates of return to defined-contribution pension plans (Whitehouse, 2007). The recent fall in financial markets significantly increases the option value of these guarantees, increasing the contingent liabilities of the government directly.

3) Pension plan regulator – The national government typically regulates the operation of private-sector pension plans, in particular with respect to funding requirements. The recent fall in pension-plan assets would typically trigger action under these regulations. One option is to adjust funding requirements and, especially, the time within which pension plans have to restore adequate funding levels. Such action could forestall plan defaults.

4) Political pressure – Arguably the largest risk faced by governments with respect to pension funding is the possibility that the government – and, in turn, the taxpayer – will be forced to compensate pension plans for at least a portion of the reductions in asset value they have suffered. This type of contingent liability is more open-ended. As recent calls for government action to compensate homeowners for the loss in house values demonstrate, the call on government resources could approach a significant portion of the recently suffered losses.[2]

4 Longer-term concerns

4.1 Short- and medium-term responses should not compromise fiscal sustainability

The immediate long-term concern with respect to the fiscal impact of the financial crisis is that any short- or medium-term response be consistent with long-term fiscal sustainability. With fiscal responses to the financial crisis and the economic recession threatening to exceed several percentage points of GDP for possibly several years, it is important that any budgetary resources allocated to assist pension funds be carefully circumscribed. As the recovery from the financial crisis in the early years of this decade demonstrated, equity markets can recover quickly. Any assistance to pension plans should be targeted only on those lower-income households for whom

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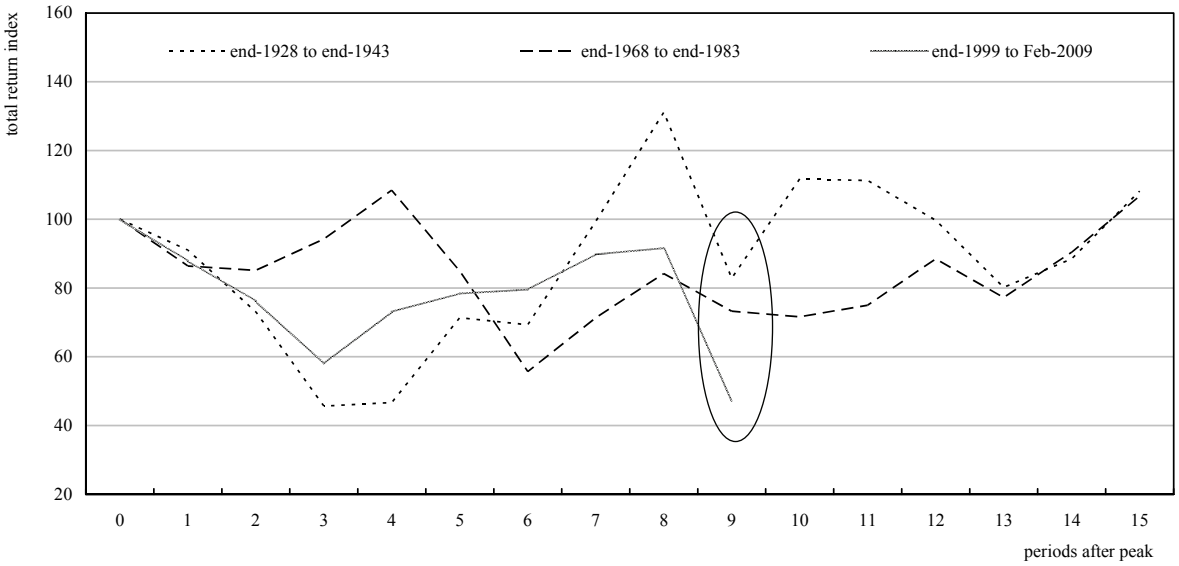
[2] In the United States, pension plans of S&P 1500 companies lost nearly half a trillion dollars in 2008, nearly 80 per cent of which occurred in the last quarter (Mercer, 2009).

Figure 7

Real S&P 500 Total Return Index for Three Extended Market Slowdowns



Source: Haver Analytics.

current retirement income is likely to be seriously reduced. Assistance to higher-income households will either trigger tax increases that these households would be likely to bear or cuts in other, higher-priority spending programs.

4.2 How persistent is the current financial crisis likely to be?

The key long-term concern is whether the current financial crisis is part of a structural break in the dynamics of economic growth and financial-market returns. A relatively short drop in financial markets would have limited and specific effects, primarily for households that are either in or near retirement. On the other hand, a longer structural break similar to that experienced from the end-1968 to end-1983 would have serious consequences for the size and adequacy of retirement saving that go beyond the impact on pension funding levels. Figure 7 presents market return indexes similar to those in Figure 2 for three periods during which equity markets were stagnant for relatively long periods in the United States. During the Great Depression, the value of an investment in the S & P 500 portfolio fell by almost 60 per cent in three years. It recovered in year 8 only to fluctuate above and below its initial value until well into World War II. A similar investment at the end of 1968 never reached a similar low point, but it remained below its original value for 13 of the next 14 years. More recently, an investment at the end of 1999 has yet to recover to its original value after nine years. Moreover, its value at this point is below the value of the investments in the earlier periods after the same number of years.

The more important correlate with the financial market during the 1970s and early 1980s was the structural break in labor productivity growth. Over this period, productivity grew at an annual rate of 1.4 per cent, significantly below the postwar average (through 2008 QIV) of 2.1 per cent. Fortunately, labor productivity growth during the current market slowdown has averaged 2.4 per cent per year, slightly higher than the postwar average. If, however, the current

financial crisis were to persist and be accompanied by a global productivity or growth slowdown, it would seriously impact the ability of countries to address their long-term fiscal challenges, most notable population aging. The impact on the finances of pay-as-you-go pension schemes, where productivity growth is a major determinant of the sustainable steady-state rate of return to pension contributions, would threaten the fiscal sustainability in a broad range of industrial countries, with indirect and serious implications for growth in developing economies.

APPENDIX

Table 1

Funded Pension Saving and Estimated Losses

Country	Total Assets			Total Equities and Mutual Funds			Share of Equities	Stock Market Decline	Exch. Rate Depreciation	Equity & Mutual Fund Losses			
	Billions of Dollars	Share of Total	Share of GDP	Billions of Dollars	Share of Total	Share of GDP				Percent	Billions of Dollars	Share of Total	Share of GDP
Australia	956.5	3.6	96.7	801.6	5.2	81.0	83.8	41.3	24.9	76.4	612.6	9.3	61.9
Argentina	27.7	0.1	9.3	8.2	0.1	2.7	29.6	49.8	9.5	64.0	5.3	0.1	1.8
Austria	18.0	0.1	4.5	6.3	0.0	1.6	35.1	61.2	7.7	73.7	4.7	0.1	1.2
Belgium	18.2	0.1	3.7	16.4	0.1	3.3	90.1	53.8	7.7	65.7	10.7	0.2	2.2
Brazil	288.4	1.1	19.4	174.8	1.1	11.7	60.6	41.2	21.2	71.1	124.4	1.9	8.4
Bulgaria	1.6	0.0	3.6	0.5	0.0	1.1	31.1	79.5	12.6	102.1	0.5	0.0	1.1
Canada	1,475.0	5.5	98.3	955.8	6.2	63.7	64.8	35.0	18.7	60.2	575.8	8.7	38.4
Chile	105.6	0.4	61.2	54.7	0.4	31.7	51.8	22.1	20.3	46.9	25.7	0.4	14.9
Colombia	24.6	0.1	10.9	1.7	0.0	0.8	7.0	31.6	13.4	49.2	0.8	0.0	0.4
Costa Rica	5.0	0.0	17.5	0.1	0.0	0.4	2.1	4.4	10.2	15.0	0.0	0.0	0.1
Czech Republic	8.2	0.0	4.2	0.9	0.0	0.4	10.4	52.7	8.8	66.1	0.6	0.0	0.3
Denmark	438.2	1.6	128.6	148.6	1.0	43.6	33.9	46.6	12.5	64.9	96.5	1.5	28.3
Estonia	1.0	0.0	4.2	0.1	0.0	0.4	9.7	63.5	12.6	84.0	0.1	0.0	0.3
Finland	175.2	0.7	65.6	75.5	0.5	28.3	43.1	53.4	7.7	65.3	49.3	0.7	18.5
France	179.2	0.7	6.4	55.7	0.4	2.0	31.1	42.7	7.7	53.7	29.9	0.5	1.1
Germany	136.5	0.5	3.8	42.7	0.3	1.2	31.3	40.4	7.7	51.2	21.9	0.3	0.6
Greece	0.0	0.0	0.0	0.0	0.0	0.0	5.4	65.5	7.7	78.3	0.0	0.0	0.0
Hong Kong	64.6	0.2	30.0	33.8	0.2	15.7	52.4	48.3	-0.6	47.4	16.0	0.2	7.4
Hungary	15.1	0.1	10.0	4.5	0.0	3.0	30.0	53.3	16.5	78.6	3.6	0.1	2.3
Iceland	27.6	0.1	140.7	11.9	0.1	60.8	43.2	94.4	48.3	188.3	22.5	0.3	114.5
Ireland	118.6	0.4	43.4	78.7	0.5	28.8	66.3	66.2	7.7	79.1	62.2	0.9	22.8
Israel	54.5	0.2	30.9	4.0	0.0	2.3	7.3	46.2	-0.4	45.7	1.8	0.0	1.0
Japan	1,021.0	3.8	22.1	500.3	3.2	10.8	49.0	41.8	-16.1	18.9	94.8	1.4	2.1
South Korea	76.8	0.3	8.0	5.5	0.0	0.6	7.2	40.7	32.0	85.7	4.7	0.1	0.5
Latvia	0.3	0.0	1.1	0.0	0.0	0.0	1.2	45.9	12.7	64.4	0.0	0.0	0.0
Luxembourg	0.5	0.0	1.0	0.4	0.0	0.7	74.0	59.5	7.7	71.9	0.3	0.0	0.5
Mexico	110.4	0.4	10.2	13.7	0.1	1.3	12.4	24.2	16.9	45.3	6.2	0.1	0.6
Netherlands	1,013.4	3.8	120.2	453.0	2.9	53.7	44.7	52.3	7.7	64.1	290.4	4.4	34.4
Norway	27.4	0.1	6.3	8.9	0.1	2.0	32.5	54.3	20.5	86.0	7.7	0.1	1.8
Pakistan	0.0	0.0	0.0	0.0	0.0	0.0	30.4	58.3	22.6	94.1	0.0	0.0	0.0
Peru	19.5	0.1	16.3	10.2	0.1	8.5	52.1	59.8	3.6	65.5	6.7	0.1	5.6
Poland	51.5	0.2	10.4	18.1	0.1	3.7	35.1	51.1	-5.3	43.0	7.8	0.1	1.6
Portugal	34.6	0.1	14.4	16.3	0.1	6.8	47.1	49.7	7.7	61.3	10.0	0.2	4.2
Romania	0.0	0.0	0.0	0.0	0.0	0.0	8.5	69.7	18.2	100.5	0.0	0.0	0.0
Russia	16.0	0.1	1.0	9.8	0.1	0.6	61.6	71.3	10.0	88.5	8.7	0.1	0.6
Slovak Republic	3.1	0.0	3.5	0.3	0.0	0.4	11.2	19.4	-13.3	3.5	0.0	0.0	0.0
Slovenia	1.6	0.0	3.0	0.3	0.0	0.5	16.2	67.5	7.7	80.5	0.2	0.0	0.4
South Africa	201.9	0.8	69.2	34.7	0.2	11.9	17.2	35.4	32.6	79.5	27.6	0.4	9.5
Spain	128.8	0.5	8.2	30.8	0.2	2.0	23.9	39.4	7.7	50.2	15.5	0.2	1.0
Sweden	260.7	1.0	53.9	162.1	1.0	33.5	62.2	38.8	18.6	64.6	104.7	1.6	21.6
Switzerland	505.4	1.9	109.9	243.6	1.6	53.0	48.2	34.8	4.2	40.5	98.6	1.5	21.5
Thailand	12.8	0.0	4.9	1.8	0.0	0.7	14.2	47.6	3.8	53.1	1.0	0.0	0.4
United Kingdom	2,151.4	8.0	76.9	1,222.0	7.9	43.7	56.8	31.3	24.1	63.0	769.8	11.7	27.5
United States	17,076.9	63.6	121.4	10,263.2	66.3	72.9	60.1	33.8	0.0	33.8	3,472.8	52.7	24.7
Total	26,853.2	100.0	59.9	15,471.4	100.0	34.5	57.6	35.7	5.1	42.6	6,592.1	100.0	14.7

Table 2

Pension Reserve Funds

Country	Name	Type	Since	Asset size *(millions $USD 2006)*
United States	Social Security Trust Fund	social security reserve fund	1940	2,048,112
Japan	National reserve funds (incl. GPIF)	social security reserve fund	1959	1,217,551
Norway	Government Pension Fund – Global	sovereign pension reserve fund	1990	278,124
Korea	National Pension Fund	social security reserve fund	1988	190,842
Sweden	National Pension Funds	sovereign pension reserve fund	2000	117,468
Canada	Canada Pension Plan reserve fund	social security reserve fund	1962	86,392
Spain	Social Security Reserve Fund	social security reserve fund	1997	44,875
France	Pension Reserve Fund (FRR)	sovereign pension reserve fund	1999	39,140
Ireland	National Pensions Reserve Fund	sovereign pension reserve fund	2001	23,710
Australia	Future Fund	sovereign pension reserve fund	2006	13,678
Portugal	Financial Stabilisation Fund	sovereign pension reserve fund	1989	8,330
Mexico	IMSS Reserve Fund	social security reserve fund		7,392
New Zealand	Superannuation Fund	sovereign pension reserve fund	2001	6,666
Poland	Demographic Reserve Fund	sovereign pension reserve fund	2002	1,760
Denmark	Social Security Fund	social security reserve fund	1964	659

Note: Social security reserve funds are classified as funds managed and legally ownded by the social security scheme. Sovereign pension reserve funds are classified as being owned by government but "legally assigned to support the social security system or more generally to address fiscal imbalances caused by demographic ageing".
Source: Yermo, J. (2008), "Governance and Investment of Public Pension Reserve Funds in Selected OECD Countries", OECD, Working Paper on Insurance and Private Pensions, No. 15.

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