

## **Hard Landings**

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Economists who have done the most sophisticated modeling of the impact of population aging routinely refer to their work as “speculative” and fraught with uncertainty. This is not an unreasonable way of viewing the results of their simulations.

Gazing into the crystal ball for financial markets is an even more speculative task. Any attempt to define the demographic effect on markets is certainly going to be not only speculative -- but highly speculative. Studies in this area should not, then, be viewed as forecasts of what will actually happen, but merely outlines of a possible scenario. The room for error here is larger than predicting actual demographic change – or even doing broad macroeconomic simulations.

My perspective is that of a journalist who for more than a year has been Director of Research for the Global Aging Initiative and charged with researching several topics for white papers.

So, with these caveats, let me now rush in where angels fear to tread. [SHOW SLIDE 1]

The principal focus of my presentation is on the cash flows into and out of funded pension systems. When workers are active, employers either contribute for them into funded plans – or the workers themselves contribute into those plans. When workers retire, pension systems begin to pay out the benefits guaranteed. When those benefits are paid out, it may require the plan to liquidate some of its assets to pay those benefits.

The coming demographic changes will distort cash flows into and out of pension plans in ways that merit our attention, with potentially large effects on the value of equities and bonds. [SHOW SLIDE 2]

Ideally, cash flows into and out of pension plans are fairly balanced. Demographic change, however, distorts the ideal balance. Demographic changes have already increased the flow of cash into pension plans over the past decade and will continue to do so for another decade. [SHOW SLIDE 3]

After that, demographic changes will cause the cash flow to reverse. Pension plans will be paying out more in benefits than they are taking in. Since pension plans continue to earn money on their assets, those assets will continue to grow for another decade or so. After the mid-2020s, however, the assets of pension plans may decline to maintain the required cash flow to retirees.

Most observers assume that net cash flows into pension plans will tend to drive up the value of equities while net cash outflows from pension plans will tend to drive down the value of equities. From that view, the force of demography is currently assumed to be pushing equity values higher than they might otherwise be, but sometime during the 2020s, the force of demography will tend to drive down the value of equities – all other things being equal.

The U.S. will be the key player in this cash flow drama primarily because it holds the majority of the world's pension assets. In 1999, it held \$7.767 trillion or 59% of those assets, according to InterSec Research. [SHOW SLIDE 4]

The pace at which pension funds could potentially dissave is quite significant. Syl Schieber and John Shoven in 1994 did a study that made some of the most widely quoted simulations. They simulated a scenario where U.S. pensions could become net dissavers in 2024 and the net dissaving would reach 1.5% of payroll by 2040 and 4% of payroll by 2065. Here is a graphic representation of their dissaving scenario. [SHOW SLIDE 5]

These trends seem to support the view that there will be a market meltdown, although its authors insist they are not, in fact, predicting that. They say this outcome should be seen as a “what if” scenario of what will happen if

employers do not alter their current behavior or if investment returns are unchanged. (The authors assume a modest 5% return on equities.) In response to the potential this graph shows, sponsors of pension plans, looking to the future, could increase the annual contributions into pension plans, especially if changes are made in laws to make this easier to do.

The effect of cash flows was just recently also the subject of a study by Merrill Lynch in London. The study's author Jan Mantel found that pension plan cash flows in the four countries with the largest pension holdings will turn negative after 2025.

The four countries are the United States, the United Kingdom, Japan and the Netherlands. In 1999 they represented 86% of the world's total pension assets in (\$11.1 trillion out of \$13 trillion total global pension assets.)

The Merrill Lynch study found a more benign effect of cash outflows in the U.S. than did Schieber and Shoven. They foresee it only modestly driving down assets after the 2020s.

Here's a chart of the effect that Merrill Lynch foresees. [SHOW SLIDE 6]

The effect in the U.S., as you can see, is more modest than in the other countries, primarily due to the fact the U.S. will be aging at a slower pace.

In the U.K. pension funds' net cash flows could fall from a positive 2% of Gross Domestic Product in 2010 to a minus 1% of GDP by 2035.[SHOW SLIDE 7]

In Japan, pension funds' net cash flows are expected to fall from the current positive 0.50% of GDP to a minus 1% of GDP by 2050.

Merrill Lynch also found that pension plans would likely switch more of their investments from equities to fixed-income instruments. This would be done to better match the assets of the fund with its rising liabilities. This switch, too, could put downward pressure on equities and also reduce the return on fixed-income investments, according to a recent International Monetary Fund study by Robin Brooks.

Economist Andrew Abel of the Wharton School developed a general equilibrium, overlapping generations model to measure the impact of

demography in a model that was designed from the ground up with a demographic factor. [SHOW SLIDE 8] Most econometricians prior to this modified existing models to add on a demography factor.

Abel found that on a theoretical level the saving behavior of different demographic groups would tend to drive up equity prices when there was a larger proportion of working people and drive down equity prices when there was a larger proportion of retired people.

Economist James Poterba challenged Abel's findings in a review of historical data in the U.S. from the Federal Reserve Board's period Survey of Consumer Finances.

Poterba found that five surveys of 30,553 individuals from 1983 to 1995 showed common trends that were different than those predicted by Abel. [SHOW SLIDE 9] While real holdings of common stock in defined contribution plans only peaked between the ages of 55 and 59 at \$32,515 in constant 1995 dollars, they decline to \$28,219 for people between the ages of 70 and 74, and then down to \$24,722 for those over 75.

Essentially, then, Poterba found that the decline in total asset values for retirees did not fall as quickly as Abel's model would suggest.

When one measures an individual's net financial assets, the impact is even less. Net financial worth includes gross holdings of stock held in defined contribution plans plus all other financial assets, less consumer and investment debt – but not equity in houses.

Poterba [SHOW SLIDE 10] found that net financial worth rises in value over a lifetime up to age 55 and then stays relatively constant for the rest of a person's life. In the five studies, for example, it rises to \$82,538 for ages 65 to 69, then falls to \$76,835 in constant 1995 dollars for ages 70 to 74, and then rises again to \$84,806 for ages 75 and up.

Abel, in a response to Poterba, modified his model to include a bequest motive – that is, people save not just for their retirement but to have money left over to leave to their heirs. This will affect supply and demand, Abel notes. In the build-up phase when boomers are saving for retirement, there will be a bigger run-up in equities because they are cheaper to issue when there is so much demand for them. However, the bequest motive does not

ultimately reduce the steepness of the decline caused by the demographic shock. It only delays it.

Abel does not expect a crash, but that there will be a gradual erosion of prices. He cautions that other factors will affect equity trends also. For example, increases in stock values in the U.S. in the late 1990s were influenced as much by gains in productivity as by increases demand for equities by baby boomers saving for retirement. As assets are spent down later, they will drive the overall trend line lower than they would otherwise be, he suggests, but hesitates to say further how exactly his theory will play out in the real world.

Rising government debt also poses dangers to financial markets. As developed nations borrow to pay benefits in pay-as-you-go pension systems in the large developed countries, it may drive up interest rates around the world and even crowd out investment in the real economy.

A recent study by the European Commission found that debt could rise to 200% of GDP if countries do not institute important reforms to keep spending on old age benefits under control. Here is a chart of the findings of that study. [SHOW SLIDE 13].

The EC study by Kieran McMorrow and Werner Roeger also contends that most of the negative impact of aging could be countered in Europe, at least, if labor force participation rates rise by 1 percentage points – from 65% to 75% – and thereby more closely resemble labor force participation rates in Japan and the United States.

There could, however, be dangers to financial markets even if only one or two major nations fail to implement sufficient reforms. Both higher borrowing and higher spending were correlated with higher interest rates in nine industrial nations in 1999 IMF study of historical data by Robert Ford and Douglas Laxton. A one percent increase in OECD-wide debt has on average increased interest rates by 28 basis points in the U.S. and similar amounts on other industrial nations. By contrast a one percentage point increase in government consumption in is a hefty 205 basis points, or more than a 2 percentage point increase. They also higher debt and spending in only one major industrial country could drive up interest rates for other industrial countries.

Equities also will be affected by a slowing economy in the industrial nations. A 1998 study by the Organization for Economic Cooperation Development by Dave Turner et al found that in the years between 2025 and 2050, Europe's potential growth rate is expected to fall to only 0.5%, Japan's to 0.6%, and the United States to 1.5%. [SHOW SLIDE 14.]

Sluggish economic growth will likely reduce return on investment for many sectors of the economy. Lower growth potential could also dampen equity prices.

There are other divergent views to what might happen to equity prices. [SHOW SLIDE 15] Mantel at Merrill Lynch believes that the supply of equities will adjust when demand dries up because issuing equities will become more costly and debt issues might be preferred for corporate financing. Thus, lower supply could offset lower demand and dampen downward pressures on equity prices.

Another view is that markets are already factoring in future expected declines in demand for equities well in advance of this happening and, thus, there will be no decline in the face of changing cash flows.

Yet another view holds that cash flows are more or less irrelevant to the value of equities, which are determined more by estimates of the current after-tax value of future earnings. [SHOW SLIDE 16]

This is the view of Ransom and Shipman from a 1981 paper that found no historic relationship between mutual fund cash flows and share prices. From this view, unless the outlook for after-tax earnings changes, lower demand for equities would not necessarily reduce prices.

Even assuming that demand and supply affect equity prices – as most do -- there could, of course, be a countervailing demand for more equities than can arise both within the developed world and the developing world. This demand could be rising just as demand is falling in the industrial countries that now account for nearly all the world's pension assets. [SHOW SLIDE 17]

Merrill Lynch's study points out the potential impact of expanding employer-sponsored pension plans in the four nations it studied. Significant expansion of those plans in the U.S., U.K., Japan and the Netherlands, which

typically are available only to half or less of all active workers, could largely offset the volume of selling that will occur from retired workers.

Then there's demand from countries where funded pension systems are currently nonexistent or only a small part of existing pension schemes. Germany, for example, is as expected next week to pass a law to reform its Social Security system and set up funded supplementary plans that will within a decade set aside 4% of payroll for most workers. This will gradually add a new big demand for equities that will deepen capital markets in Germany and increase overall global demand for equities.

Similarly, assets in already existing funded pension schemes in Australia, Poland, Hungary and Latin America are also expected to grow rapidly in the future and be part of the larger global demand for equities. If funded systems were introduced in other large developing countries, this demand could be expanded more, provided there were no barriers to owning foreign equities. The history of the developing world so far is not encouraging in this regard.

The potential of individual Social Security retirement accounts in the U.S. has been boosted by the election of George W. Bush to the Presidency. Even here, there are considerable political obstacles to overcome before it can be enacted. The potential impact of funded individual Social Security accounts will be modest at first, since only workers 40 or younger are likely to be allowed to voluntarily divert up to 2% of their payroll into private accounts. Yet, in time, this could generate large levels of demand for new investments that it could help offset much of the decline in the demand that is expected from demographic changes. This new demand for equities could be gathering critical mass by the 2020s when it will be needed the most.

Even with more funded pension schemes, reforms will also be needed to prevent debt levels from reaching crisis levels. [SHOW SLIDE 18] These include reforms that reduce benefit levels or raise revenues, as well as delaying retirement. Reforms that increase labor market participation of women and all workers 50 and over will help.

Finally, on the plus side, as the need for pension becomes more evident, the political support for them will likely rise to the point that reform is possible – even where it is facing serious political difficulty now. And, while the adjustment may be more abrupt as a result of delay, the adjustment will of necessity have to take place