Global Aging: *Opportunity or Threat for the U.S. Economy?*

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Mr. Chairman and members of the Committee, thank you for inviting me to testify before you regarding the issues related to global aging and its implications for the U.S. economy. I am going to focus on some of the capital market issues that I believe are likely to arise as the average age of populations across the world, especially the developed world, increase in the coming decades. Capital markets, like any markets, have both a supply and demand side. The implications for each may be somewhat different so I will consider each separately before offering some summary observations about the potential policy implications that you might want to consider.

The Implications of Global Aging on the Supply of Savings

Economists often think about the process of saving for retirement in the context of a theoretical life-cycle model to explain saving and consumption patterns of individuals at varying ages.[1] In its simplest form, the life-cycle model suggests that workers will borrow against the expected stream of future earnings during the early phases of their lives to start their families, buy their homes, and so forth. During the middle phase of their working lives, they pay off their early career debts and accumulate excess assets by regularly consuming less than they earn. The accumulating assets can be laid away at interest to be reclaimed and used later when the ability or inclination to "earn" a living is greatly diminished. The life-cycle model can be enhanced by allowing the family unit, as opposed to a single individual, to define the time horizons for borrowing, saving, and retiring. It also allows one generation to bequeath some share of its lifetime accumulation to subsequent generations.

One of the more controversial issues related to cross-sectional analyses of the life-cycle model has been the effects of organized retirement programs on saving behavior. The life-cycle model suggests that the provision of retirement benefits through a social security program or an employer-based pension should result in lower individual saving by workers covered by such plans. A number of cross-sectional analyses support this conclusion. For example, Martin Feldstein has concluded that national retirement systems funded on a pay-as-you-go basis result in reduced national savings rates because workers offset their other savings to the extent their public pensions represent personal wealth in their retirement portfolios.[2] Other analyses conclude that saving through retirement plans does not fully offset saving outside these plans.[3] In a broad review of the literature in this area, William Gale concludes that estimates that find that pensions have little effect on saving outside them have been inappropriately developed resulting in systematic biases that understate the extent to which pension saving leads to reductions in non-pension wealth accumulation.[4]

An alternative to using cross sectional data to document the life-cycle model of consumption and saving is to track a segment of a population across time. But the use of such panel data has its own set of problems. Probably the most important is related to the timing over which data is gathered. For example, if the period observed is one of abnormally high returns on assets, increases in net wealth might be observed during the period a sample of the older population is studied despite consumption behavior consistent with the life-cycle model. In a survey of the literature in this area, Michael Hurd concludes that the evidence seems to support the life-cycle model.[5] But there is still considerable variation in patterns of wealth decumulation

not explained by this model. Some of it may be due to bequest motives. Part may be due to concerns of the elderly over longevity risk and the extent to which they have annuity income. Everything else being equal, one would expect a person whose retirement wealth is largely annuitized to consume at a higher rate than one whose wealth was not. The latter has to self-insure against outliving his or her retirement savings whereas the former has such insurance provided through the annuity arrangement.

Yet another way to test the relevance of the life-cycle model is to look at variations in savings across countries with varying age structures. Here Richard Disney cites a 1990 Organization of Economic and Cooperative Development (OECD) study that estimated that the net household saving ratio varied significantly and negatively across countries in proportion to the portion of national populations aged 65 and over. Disney identifies a number of technical problems with the study that cast doubt on its conclusion. His own attempts to replicate the OECD findings found a negative relationship between both national savings rates and household savings rates and the aged dependency ratios in OECD countries, but did not find these relationships to be statistically significant. However, Disney did find a strong and statistically significant relationship between the average growth in fixed capital formation and the aged dependency ratios across OECD countries. Overall he concluded that the cross national evidence tends to confirm the predictive power of the life-cycle model.[6]

If the evidence supports the life-cycle theory of savings, then the age structure of a society has the potential to affect the aggregate saving rate in a country. If older people tend to save at lower rates than their younger counterparts, having more old people will reduce savings

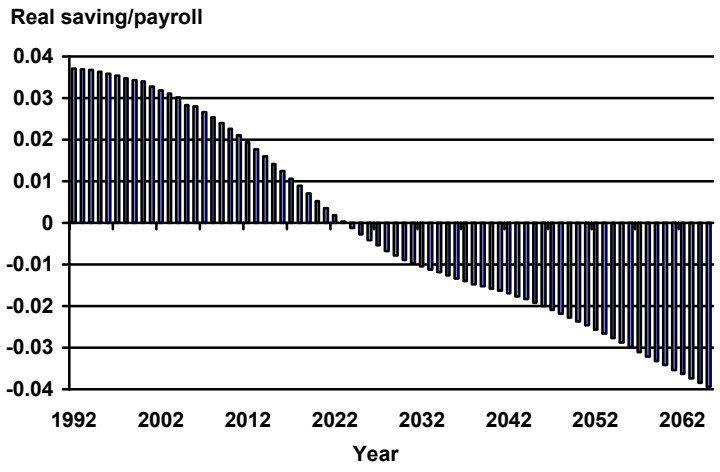
rates. This can occur through the collective effects of individual changes in saving behavior as populations age or it can arise through the operation of retirement programs.

About a decade ago, John Shoven, an economics professor at Stanford University, and I created quite a stir when we wrote a paper reporting the results of simulations of the private U.S. pension system through the retirement of the baby boom generation.[7] In our baseline simulation, we assumed that employers would continue to contribute to their pension plans at the rate they were then contributing and that workers would draw benefits at retirement in accordance with the benefit formulas then prevalent in the system. The results of our baseline simulation are presented in Figure 1.

The figure shows the total real saving of the private pension system (projected contributions less benefits plus real inflation-adjusted asset returns) relative to the projected total private payroll in the economy for 1992 to 2065. We used total payroll as the scaling factor simply because it is a readily available by-product of the Social Security forecasting operation. What Figure 1 shows is that under our assumptions the pension system would continue to generate significant investment funds for the American economy for the first 20 years or so of the projection period. In fact, the decline is very minor for the first ten years and then it steepens considerably. We projected that by 2024, the private pension system would cease being a net source of saving for the economy. We estimated that the system will then become increasingly a net dissaver. By 2040, the net real dissaving is more than 1.5 percent of payroll and by 2065 the negative saving is projected to reach almost 4.0 percent of payroll. We suggested the change of

the pension system from a large net producer of saving to a large absorber of saving would likely have profound implications for interest rates, asset prices and the growth rate of the economy.

Figure 1: Potential Real Saving of Private Pensions Relative to Total Private Payroll for the Years 1992 to 2065 Assuming Current Plan Characteristics and Contribution Rates Persist



Source: Sylvester J. Schieber and John B. Shoven, "The Consequences of Population Aging on Private Pension Fund Saving and Asset Markets," in Sylvester J. Schieber and John B. Shoven, eds., *Public Policy Toward Pensions* (Cambridge, MA: MIT Press, 1997), pp. 238.

One implication of the baseline projection that we made in the early 1990s was that the private defined benefit pension system would run out of money before the baby boomers had completed their retirement period. Since pension law requires that employers fund their pension obligations, federal law precludes the scenario depicted in Figure 1 from occurring. We predicted at the time that we wrote the paper that employers would either accelerate their funding in future years or they would curtail their plans. Since then, we have seen some combination of the two actually occur. Indeed, it has been the unfolding of a predictable surprise.

In the paper we wrote summarizing our analysis, we emphasized that the timing of the prediction of the change in pensions from a net buyer of assets to a net seller is very sensitive to our assumptions about the rates of return earned on pension investments as well as to the assumed level of pension contributions. However, we concluded that the pattern of Figure 1 is almost inevitable; only the timing could be somewhat different than pictured. If investment returns exceeded our fairly conservative assumptions, then the decline of the saving contribution of pensions would be more modest and delayed in time. Still, we thought that the demographic structure is such that it would by necessity occur. It is not even correct to think of this as a negative development. After all, pension assets are accumulated to provide for the resources needed by the elderly in retirement. It is only natural that when we have an extraordinarily large number of retirees, the real assets of the private pension system will shrink and the system will at least temporarily cease being a source of new investment funds for the economy.

Compared to the remainder of the developed world the demographic situation the United States faces is a relatively minor problem. While the U.S. fertility rate has rebounded to essentially full replacement in recent years, Italy's and Spain's fertility rates are below 1.2 and dropping. Germany's and Japan's are around 1.3 and show no signs of increasing. Where fertility falls short in creating the possibilities of continued population, labor force, and economic growth, immigration merely accentuates the situations various countries face. For the United States, immigration means that our labor force is likely to continue to grow for at least the next couple of decades. While our labor force growth will be less than what we have experienced over the working lives of virtually all people in the workforce today, it will be

positive. Japan, Germany, Italy, Spain, and a host of other developed countries will likely see their labor forces begin to decline by the end of this decade or during the next one.

The flow of funds in and out of funded pension plans affects savings rates. But the potential effects of population aging on funded pension funds in most of the developed world may not be as large as they are in the United States. The funded pension system in the United States is much larger than it is in other countries with the possible exceptions of Canada, the United Kingdom, and the Netherlands. It is important to note, however, that funded pensions are not the only way people save.

Comparing cross sectional survey data across a number of countries, as we do in Table 1, actually suggests that the life-cycle model discussed earlier may not apply and that population aging might lead to increased saving rates. In the United Kingdom and Japan, savings rates seemingly increase steadily with age from age 55 to 64 and up. In Canada and Germany, there is a dip in the savings rate from ages 55 to 64 to the next age category of 65 to 74 but then it increases again for the age group 75 years of age and older. It is only in the United States and Italy that the savings rate actually falls from age 55 to 64 onward, but in the case of Italy, the saving rate is still remarkably high. It is only in the United States that savings rates actually turn negative at advanced ages. Overall, the results in Table 1 suggest that the aging of the populations in much of the developed world might actually result in an increase in available savings to fuel our capital growth in the future. That conclusion would be premature.

Table 1: Estimated Personal Savings Rates for Selected Countries by Age

Age	United Kingdom	Canada	Japan	Germany	Italy	United States

25-34	6.22	1.50	11.00	11.00	13.26	8.72
35-44	9.42	4.00	20.15	14.00	15.57	14.21
45-54	12.24	6.50	17.60	16.00	17.65	14.75
55-64	7.62	10.00	19.70	10.00	17.94	10.81
65-74	11.36	6.00	20.20	7.50	16.52	-4.88
75+	19.82	8.00	26.45	10.00	15.70	-6.54

Note: Ages are of the household head/reference person and savings rate in each age group is for all households in their respective samples.

Sources: U.S.: Bureau of Labor Statistics, http://stats.bls.gov/cex/2000/Standard/age.pdf; Japan: Kitamura et al. (2000), Table 3, pp. 5; Italy: Brugiavini et al. (2000), Table 7, pp. 27; UK: Banks et al. (March 2000), pp. 63-4; Germany: Borsch-Supan et al. (2000), Table E1; Burbidge et al. (1994), Figure 1.9, pp. 39-41.

The Implications of Global Aging on the Demand for Savings

The results in Table 1 have the potential to be very misleading if we use them to assess the implications of savings rates by age in the developed economies of the world. These are estimated personal savings rates taken from survey data. Data of this sort is often unreliable. While older people might have more difficulty in recalling detailed information in regard to their income and savings level than younger ones, there is no reason to believe that such recall differences would be great enough to account for the relatively consistent pattern in the table. The real problem with Table 1 is that it focuses purely on the supply of savings and not on the use of personal savings. There is reason to believe that global aging will also affect the demand for savings, including for things other than investment. It is going to do this in a couple of ways.

Using Government Deficits to Cover Retirement Costs

One of the results of modeling public retirement systems in the major developed countries around the world has been a growing awareness of the potential problems an aging

population can pose. This awareness has motivated a number of countries to adopt new policies that will ameliorate the burden that retirement obligations will impose on their economies. Sweden and Italy are phasing in notional account defined contribution plans that promise to significantly curtail benefits for future generations of retirees. Germany and Japan have adopted legislation to reduce retirement benefits to varying degrees in their existing systems and have implemented voluntary tax-favored savings programs similar to the 401(k) system in the United States. Canada has adopted an increased schedule of payroll taxes so today's workers can pre-fund a portion of the benefits for future retirees. France has modestly reduced the generosity of private sector pensions, changing the indexing formula and number of years required to qualify for full benefits. The United States has debated reforming its social security pension system but has been unwilling to adopt sufficient changes to sustain it over the long term. The United Kingdom has modified its national retirement system over to an extent where it appears the country will not face the fiscal demands most developed countries will but where growing elderly poverty will likely be the ultimate price to achieve this end.

In 2001, the European Commission (EC) and Organization of Economic Cooperation and Development (OECD) developed a set of estimates of the potential growth in fiscal costs associated with population aging in the various countries in their memberships. The results of these projections are reflected in Table 2. The projections reflected the governmental retirement and health financing systems as they operated at the time of the projections and did not include anticipated changes in law. There is substantial reason to believe that the projections may err on the low side because some of the assumptions underlying them seem overly optimistic.[8]

Table 2: Estimated Age Related Spending for Old-Age Pensions, Health Care and Long-Term Care as a Percent of GDP in 2000 and 2050 for Selected Countries

	Old-age pension		Health care and long-term care	
	2000	2050	2000	2050
Australia	3.0 %	4.6 %	6.8 %	13.0 %
Belgium	8.8	12.1	6.2	9.2
Canada	5.1	10.9	6.3	10.5
Denmark	6.1	8.8	6.6	9.3
France	12.1	15.9	na	na
Germany	11.8	16.8	na	na
Italy	14.2	13.9	na	na
Japan	7.9	8.5	5.8	8.2
Netherlands	5.2	10.0	7.2	12.0
New Zealand	4.8	10.5	6.7	10.7
Norway	4.9	12.9	5.2	8.4
Spain	9.4	17.4	na	na
Sweden	9.2	10.8	8.1	11.3
United Kingdom	4.3	3.6	5.6	7.3
United States	4.4	6.2	2.6	7.0

Source: Thai Than Dang, Pablo Antolin, and Howard Oxley, *Fiscal Projections of Aging: Projections of Age Related Spending* (Paris: OECD, September 2001), Economics Department Working Papers No. 305, p. 25.

The fact that there is greater awareness on the part of policymakers about the problems associated with aging societies or that they have adopted policies to deal with it raises the question of whether the developed countries are doing enough to respond to the challenge aging populations pose. Some countries have clearly done a great deal more than others in modifying the structure or the generosity of their retirement systems with the goal of reducing the prospective burden of aged dependency to tolerable levels. But then, some countries face a much larger aged dependency problem than others. For example, the aged dependency ratio in

Italy, Japan and Spain in 2050 is projected to be about twice that of the United States. It may not be as crucial that the United States adopt policies to deal with its aging or that it do it as soon as those with a more serious aging problem. But then again, the United States has such a relatively expensive health system with attendant costs for its aged dependents that health cost inflation might more than offset any benefits from having less aging dependency.

In the European Union, the members are subject to the Stability and Growth Pact that requires that they run their government budgets "close to balance or in surplus." The expectation that each member of the EU will abide by this agreement gives this set of developed economies, all with aging populations, a unique cross national interest in addressing the problem of rising aging obligations. It is not a coincidence, then, that the EC and OECD have made a major contribution in helping detail the costs of aging across the developed economies. Both organizations are based in the heart of the EU. One is exclusively made up of its members and the other is significantly comprised of them.

The European Commission recently reviewed the budget plans of the EU members against the standards in the Stability and Growth Pact from both a short-term and intermediate-term perspective.[9] In virtually all of the cases, they included comments in their country reviews on the sustainability of the national pension system under current law. In a number of cases, they also included comments about the costs that would be associated with aging under the health care system. In 10 of the 15 country reviews, there was a recommendation that further adjustments would likely have to be made to the pension system for the country to stay in compliance with the Stability and Growth Pact over the longer term. This conclusion was based

on the modeling of the pension systems done by the EC and included assumptions that other non-age related functions of the various governments would continue to operate in the future at roughly the same size as currently relative to the size of the national economy.

As the European countries confront the budgetary challenges they face in curtailing their pensions, they are undoubtedly going to be affected by a set of countervailing pressures. On the one hand, it will be tempting for each country to pursue policies in their own home countries that meet the needs and desires of their own local populations. The natural inclination might be for a country to ignore the claims future aged dependency will impose on its economy under the assumption that it will simply use deficit financing to cover the costs associated with an aging population as it arises. Such an approach, however, would violate the Stability and Growth Pact. How these pressures are resolved remains to be seen. But there is already evidence that social insurance budgets are driving some of the major EU countries to the brink of violating the treaty. And the full impetus of aging burdens is still on the horizon. If the EU and other developed countries do depend on deficit financing to cover public retirement claims, the deficits will soak up savings going on in the household sector, diverting them from productive investment. In this scenario, household savings would not contribute to economic growth.

The implications of the aging phenomenon for savings may not be solely dependent on the existence or richness of unfunded retirement programs. Japan's economy has been in the doldrums for most of the past decade. Part of the reason for that is reflected in Table 1 which shows personal savings rates to be much higher than the other large developed economies of the world. Part of the reason Japan has had so much trouble getting back on a path of strong

economic growth has been the lack of demand for goods and services in the household sector. But the government has repeatedly undertaken major structural projects over the last decade financed with government deficits in order to stimulate demand in hopes of pumping up the economy. The government debt during this period has gone from one of the lowest in the developed world to one of the highest. The deficits have soaked up much of private household saving. Among other things, it has been used to build airports that are now sinking into the sea and bridges that go nowhere. The long-term benefit of these savings will likely prove negligible for Japan as it contends with the most rapidly aging population in the developed world.

In North America, Canada has accelerated the increase in payroll tax rates to fund its system and reduced some benefits that put its pension commitments on much sounder footing than just a few years ago. It is attempting to create real savings and investment in its economy to help ameliorate the burden on workers down the road. But there are still concerns over whether Canada's system is sufficiently funded. In the United States, an increase in the normal retirement age is now being phased in but there is nearly universal agreement that the pension system is not sufficiently funded to sustain benefits for the retirement of the baby boom generation. There are no signs of consensus on how the US system will be adjusted in response to its underfunding.

The EC and OECD projections suggest that the majority of countries have not yet addressed the challenges posed by their aging populations. The picture drawn by the EC relative to the EU countries is clear. Ignazio Visco (2001) at the OECD looking at the broader spectrum of developed economies reaches the same conclusion. He observes that "the need to continue

responding as early as possible to the economic and fiscal pressures associated with ageing populations is, therefore, not reduced when the most recent reforms introduced in OECD countries are taken into account."[10] Until the developed countries of the world adjust their retirement systems to bring them into some semblance of cash flow balance, the aging populations of the world pose a long-term threat to the availability of sufficient savings to support the need for productive investment capital.

Timing of Savings and Investment Shifts Due to Population Aging

If a government uses deficit financing to provide retirees with a sufficiently high retirement income that they save a substantial portion of it, the personal saving is illusory. This is potentially a problem that many countries face in the future but it should not be a serious one for another 10 to 15 years in many cases. Alternatively, there is an interesting phenomenon that is now beginning to arise in some of the countries where fertility rates have been quite low for twenty years or more. The ultimate surge in retirements has not yet occurred but labor force growth has come to a halt or even begun to turn negative in a few cases. Because of the age structure in these societies, savings rates may increase for a decade or so. As workforces stabilize or begin to shrink, there will be a natural tendency to substitute capital for labor so the added savings may be welcome. But only up to a point.

The substitution of labor for capital will happen through natural market adjustments in the relative prices of the two factors of production. As with any other good or service in a market economy, increasing scarcity of an important resource will result in increases in the price that goods or service can demand. As domestic labor markets tighten in the developed

economies of the world, there will be upward pressures on wages within them. The rising costs of labor will cause business owners to look to other means to expand the productive capacity of their organizations. In most cases this would result in capital investment, substituting machines for the more expensive human capital. The result is that population aging can be expected to change the balance between capital and labor. In particular, it is likely that capital will take on an increasingly important role in the productive capacity of the developed economies.

In many cases, capital deepening in the developed economies will be financed through domestic savings. The working age population within a decade of retirement will typically be among the highest savers in the economy. Even though elderly retirees may have a higher savings rate in some cases, their retirement incomes on which they base their savings are smaller than those of working people and thus workers save more in absolute terms. Unless government budgets are badly out of balance, many countries should be realizing relatively high levels of saving over the coming decade. This should support considerable capital investment. There is some evidence that this has already begun to occur in some of the more rapidly aging countries of Europe. Poterba reports that labor shares of business sector output in Germany fell from an average 66.1 percent in the 1970s to 63.5 percent in the first half of the 1990s. In France the comparable shares fell from 69.0 percent to 61.6 percent. In Italy they declined from 65.4 percent to 61.0 percent.[11] The shrinking labor share reflects more intensive capital usage.

As industrialized nations rely more on capital for the production of goods and services, the extent that developed economies will be successful in meeting the demand pressures in their societies will depend on the efficiency with which the capital is utilized. If each new unit of

capital can continue to be used as effectively as the last, capital deepening can be an efficient substitute for labor and could ease the burdens of population aging in aging societies. But if the capital buildup results in excess capacity in an economy such that there are machines left idle or there is a mismatch with human capital skills, the outcome will be rising costs per unit of output. Consistent with standard economic theory, as capital becomes a greater share of the productive capacity of an economy, the tendency is for the rate of return to capital to fall.

In order to see whether we could detect any effects that aging might already be having on rates of return on capital, we attempted to quantify the impact of the age structure in a number of developed countries on value creation in the corporate business sector. A standard way to measure the surplus value of a business is through the ratio of the market value of a company's debt and equity to the replacement cost of its assets. This ratio is often known as Tobin's Q, named after its creator, economist James Tobin. It measures the ability of a firm to earn above average returns on its assets. If countries with aging populations are incurring slowed labor force growth and substituting capital for labor, firms' ability to create surplus value should be reduced. If firms in these economies create less surplus value their rates of return should be lower.

To measure the effect of population aging on the ability of firms to earn above average returns, we estimated the relationship between Tobin's Q for publicly traded firms in the developed economies in the OECD and the old age dependency ratio—individuals 55 and over to those age 20 to 54. The dependency ratio is a summary indicator commonly used to measure the extent of aging in a society. A higher dependency ratio suggests there will likely be a greater

reliance on physical capital to meet output needs in the most rapidly aging economies. If the capital deepening that results from the demographic transition underway in the aging economies results in lower returns, we expect that where dependency ratio are high or rising, Tobin's Q will be low or falling. To capture how these relationships have changed over the past decade, we include three separate time periods of 1991, 1996 and 2001 in our analysis. Table 3 reports the number of companies and the means and standard deviations for Tobin's q and the old age dependency ratios.

There are several other factors which can have an effect on Tobin's Q that we controlled for in the multiple regression analysis. How much a firm's market value is above the value of its assets on the balance sheet depends on the type of business in which a firm operates. To control for these potential effects, we control for industry, the number of business lines a firm engages in, and the size—i.e., log of total assets—of the firm. The financial characteristics of the firm are also likely to have an effect on Tobin's Q. Firms that are more susceptible to cyclical variations will have greater variance over the cycle than others. We used the long-term debt leverage of the firm relative to total assets to control for this. Since financial statements do not provide direct measures of labor expense, we used selling, general and administration expenses and capital intensity as a proxy for labor costs. Additionally, we control for asset turnover in our model to account for the ability of organizations to substitute knowledge for working capital. Firms able to better leverage their customer relationships with intellectual capital will be able to turn greater sales relative to their assets. Because of the data limitations we were unable to control for important factors such as advertising and R&D expense, which increase the value of

the firm's non-balance sheet assets. To a certain extent industry controls account for these influences.

Table 3: Selected Characteristics of Firms Analyzed to Evaluate Effects of Population Aging on Corporate Returns

Year	No. Firms	Mean Tobin's Q	Std Dev Tobin's Q	Mean Dependency Ratio	Std Dev Dependency Ratio
1991	3463	1.62	1.86	0.444	0.053
1996	5366	1.78	2.48	0.463	0.066
2001	9000	1.45	1.59	0.544	0.090

Source: *Standards and Poor's Compustat Global Database.*

The results from the multiple regression analysis are provided in Table 4. The table shows that a higher dependency ratio in a country in which an organization is incorporated has a significant negative impact on Tobin's Q. A country that has a 0.1 higher dependency ratio will have companies, on average, that have an 18 percent lower Tobin's Q. This effect is even stronger for the periods 1996 and 2001. For the 1996, a 0.1 higher dependency ratio resulted in a 22 percent lower Tobin's Q. For 2001, a 0.1 lower dependency ration was associated with a 23 percent lower Tobin's Q.

Table 4: Multiple Regression of Dependency Ratio in the OECD Countries on the Financial Performance of Corporate Firms in Those Countries

	Estimates	t-value
Intercept	1.138	7.13
Dep. Ratio	-1.822	-4.81
Dep. Ratio 1996	-0.394	-2.01
Dep. Ratio 2001	-0.464	-2.28

Leverage	-0.200	-9.51
Size	0.000	-0.02
SG&A	0.001	6.78
Capital Intensity	0.014	3.00
Asset Turnover	0.020	4.27
Industry	x	
Country	x	
Year	x	
R-Square	0.1311	
Adj R-Square	0.1289	

Source: Watson Wyatt Worldwide.

Notes: The dependent variable is log [(market value of equity plus debt) divided by total assets]. The dependency ratio is the ratio of individuals 55 and over to those 20-54.

Implications of Global Aging on US Capital Markets

In order to provide a frame of reference to put the results in Table 4 in context, Table 5 shows the aged dependency ratios as we defined them for developing our regression analysis. Looking across countries, the countries with significant baby booms after World War II had much lower aged dependency in 2000 than the others. The United States is by far the largest of these and undoubtedly has benefited from the ability to generate higher returns because of it. Over much of the last 15 to 20 years, the United States has been a significant importer of capital, in large part because our domestic savings rates are so low.

Table 5: Ratio of People Ages 55 or Older to Those Ages 20 to 54 In 2000 and Projected for 2010 and 2020 for Selected Countries

	2000	2010	2020
Australia	0.418	0.518	0.636
Canada	0.416	0.538	0.719

Denmark	0.531	0.664	0.781
France	0.510	0.635	0.769
Germany	0.599	0.661	0.863
Italy	0.592	0.698	0.874
Japan	0.610	0.824	0.936
Netherlands	0.455	0.589	0.752
Norway	0.506	0.619	0.737
Spain	0.522	0.592	0.760
Sweden	0.612	0.727	0.831
United Kingdom	0.536	0.616	0.760
United States	0.417	0.509	0.647

Source: Author's calculations from United Nations Population Division, *World Population Prospects: The 2000 Revision.*

As we look to the future, the aged dependency ratios in the United States and elsewhere around the world are projected to rise significantly. In most cases the increase will be at least 0.1 over this decade and in many cases it is more. In Japan's case the increase is expected to be 0.21 for the decade. There is little respite as we look at prospects from 2010 to 2030. The results shown in Table 4 and overlaid on Table 5 suggest that many of the developed countries may not be prime spots in which to find investment opportunities in coming years. For some period of time the United States might be the beneficiary of this evolving picture as we continue to attract capital out of the rest of the developed world. But as our own population ages, it may become increasingly efficient to seek alternative places to invest our own capital.

Capital-labor ratios will likely continue to rise in countries where the rate of growth in the labor pool is slowing. They could rise rapidly when working populations actually start falling, as they are expected to in a number of countries during this decade. Further increases in the capital-labor ratios in some of the developed economies today almost certainly imply that

relative rates of return will be lower in those economies than in others where capital could be used more efficiently because of more ample labor supplies. If the capital owners in the developed economies of the world are concerned about the efficient use of their capital and find rates of return declining in their domestic markets because labor pools are shrinking, they will need to attract additional labor to their capital. If they cannot do that by importing labor to their domestic markets because of the inhibitions against immigration that exist in some areas, they can do it by taking the capital to the workers in other parts of the world.

With an abundant supply of labor and a lower stock of capital, developing nations have the potential of generating higher rates of return to capital investment than countries with high capital-labor ratios. Industrialized economies can take advantage of more favorable economic opportunities by shifting capital abroad and the production capacity that goes along with it. In the context of using this potential to meet the consumer demands that will likely persist in aging societies as labor supplies start to contract, capital owners will be able to repatriate returns on capital investments abroad in the form of goods and services. Thus, capital flows have the potential to ease the rising demand pressures for goods and services that are likely to ensue with the aging of the developed societies.[12]

This is not simply a one-sided opportunity for the developed nations of the world to take advantage of their less-developed neighbors. The shifting of capital has the tremendous potential to dramatically increase the productivity rates in the underdeveloped economies of the world over the coming decades. Raising productivity in the poorer nations of the world should have exactly the same effects on the workers there as it did in the developed countries of the world in

the decades after the end of World War II. The tremendous increases in the standards of living that occurred in those countries after the war were largely attributable to the rapid increases in the productivity of workers in them.

Capital flows are generally classified into two major categories: portfolio investment and direct investment. Both types of investments are components of a country's capital account in the balance of payments. While both investment types infuse foreign capital to finance investment and stimulate economic growth in the receiving country, there are some major differences in the two. In a nutshell the key factor distinguishing the two types is control. Portfolio investments represent the flow of funds abroad for the purchase of financial assets of a firm or government in order to receive interest, dividends, or capital gains in return. The flows of funds for portfolio purposes are investments in which the lender gains no operating control over the borrower. With direct investment, however, the investor does gain control. Typically this refers to the purchase of land or the acquisition of ownership shares in an attempt to control a foreign business operation. However, the line between what is considered control is often nebulous. For example, if a U.S. corporation purchases shares in a Mexican firm, it may or may not gain operating control depending on the magnitude of the purchase relative to the Mexican firm's outstanding stock. Official U.S. government statistics and also statistics from the OECD assume that ownership of 10 percent or more of the ordinary shares or voting rights of an enterprise wields some influence over its management and constitutes direct control. This is consistent with the International Monetary Fund classification, but does not necessarily represent the definition used by all countries.

As the developed nations of the world grapple with the effects of population aging and capital deepening in their domestic economies, it is likely that they will induce international capital flows in the form of foreign direct investment and portfolio flows. Empirical evidence indicates that this mechanism may already be at work with their surge in recent years. To gain a sense of how foreign capital flows have become of greater importance in the world economy in recent years, Table 5 shows the inflows of net private capital and its components to various emerging regions of the world. Between the 1970's and 1990's, the emerging market economies have seen roughly an eight-fold surge in net private capital investment. Nearly all regions of the world have benefited from these inflows with Africa being somewhat an exception.

There was a slowdown in net private capital flows at the end of the 1990s, largely a result of the financial crises experienced in Asia and Russia that severely damaged investor's confidence abroad. In fact, capital flows to many of the Asian economies over the late 1990's completely dried up. While slowdown is evident in portfolio flows and bank loans extended to the developing world, the long-term expectations remain strong. Foreign direct investment, shown in Table 6, has continued to show remarkable growth by more than doubling for all emerging economies from what it was as recently as the early 1990's. The upsurge in FDI has been far-reaching across the developing world with the Latin American countries showing the greatest boost. The sharp slowdowns in portfolio flows in the 1996 to 2000 period is reflective of their oftentimes short-term nature and the ease with which these funds can "round-trip" or be withdrawn with little more than the flick of a computer key.

The pattern of FDI flows from the developed to less developed countries with much less growth of flows in the other direction makes eminent sense in context of the capital deepening that has been occurring in the developed economies. Calvo et al. argue that a major impetus for rising foreign capital flows throughout the early 1990's was the sustained decline in world interest rates.[13] One of the potential explanations for the low interest rates in the developed

Table 5: Net Private Capital Flows to Emerging Markets
(in Billions of U.S. dollars)

Net Private Capital Flows	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995	1996-2000
Total emerging market economies	67.0	85.4	69.4	104.3	717.3	481.7
Africa	27.5	54.9	32.5	13.0	30.9	45.6
Developing Asia, crisis countries	10.4	36.2	49.2	15.2	182.7	-1.8
Other Asian emerging markets	8.2	12.7	17.4	28.1	90.3	71.2
Middle East	-20.2	-115.9	-46.2	14.3	156.1	19.0
Western Hemisphere	39.4	111.8	48.5	18.0	194.2	286.1
Net Private Direct Investment						
Total emerging market economies	14.3	25.7	52.0	77.8	304.9	722.1
Africa	4.7	3.4	5.4	10.7	14.5	36.1
Developing Asia, crisis countries	2.9	5.1	7.9	17.4	35.4	47.3
Other Asian emerging markets	2.1	4.6	12.2	16.3	120.8	228.5
Middle East	-3.1	-4.3	3.7	2.1	18.4	30.4
Western Hemisphere	10.2	19.3	25.0	31.3	84.9	284.0
Net Private Portfolio Investment						
Total emerging market economies	1.1	3.1	30.1	19.5	320.9	167.1
Africa	0.9	-0.7	0.7	-4.6	9.2	20.4
Developing Asia, crisis countries	0.3	0.9	8.7	1.2	68.9	47.4
Other Asian emerging markets	0.1	0.2	0.9	-2.1	13.5	-5.5
Middle East	0.0	0.0	13.2	27.4	40.2	-26.4
Western Hemisphere	-0.2	3.0	6.4	-2.2	148.8	98.7
Bank Loans and Other						

Total emerging market economies	51.5	56.5	-12.7	7.0	91.4	-407.5
Africa	21.7	52.2	26.4	6.8	7.2	-10.9
Developing Asia, crisis countries	7.0	30.1	32.7	-3.4	78.5	-96.8
Other Asian emerging markets	6.1	7.9	4.2	13.9	-44.1	-151.8
Middle East	-17.0	-111.6	-63.3	-15.3	97.6	15.1
Western Hemisphere	29.7	89.7	17.0	-11.0	-39.5	-96.6

Source: International Monetary Fund, *The World Economic Outlook (WEO) Database,* October 2001.

Table 6: Foreign Direct Investment Inflows and Outflows to and from Non-OECD Economies

	Outflows of DI to Non-OECD Countries *(percentage of GDP)*				**Inflows of DI from Non-OECD Countries** *(percentage of GDP)*			
	1981-1985	1986-1990	1991-1995	1996-2000	1981-1985	1986-1990	1991-1995	1996-2000
Australia	0.131%	0.213%	0.001%	0.190%	0.039%	0.414%	0.566%	0.413%
Austria	0.036	0.031	0.085	0.395	0.045	0.030	0.049	-0.076
Belgium-Luxembourg	0.083	0.503	0.093	0.746	0.103	-0.004	-0.021	1.637
Canada	0.503	0.167	0.404	0.781	0.053	0.052	0.088	0.135
Denmark	0.055	0.061	0.063	0.428	0.006	0.000	0.056	0.279
Finland	0.060	0.240	0.127	0.272	0.007	-0.007	0.009	0.041
France	0.057	0.354	0.603	0.472	0.044	0.234	0.263	0.040
Germany	0.111	0.035	0.130	0.328	0.019	0.023	0.019	0.081
Ireland	-	-	-	-	0.071	0.015	0.028	0.002
Italy	0.174	0.096	0.143	0.160	0.067	-0.026	0.036	0.014
Japan	-	-	-	0.327	-	-	-	0.039
Netherlands	0.077	0.446	0.637	1.346	0.174	0.276	0.188	0.526
Norway	-	0.328	0.092	0.930	-	0.011	0.004	0.366
Portugal	-	-	0.063	2.330	-	-	0.171	0.328
Spain	0.095	0.088	0.225	2.257	0.195	0.531	0.160	0.048
Sweden	0.580	1.089	0.802	3.613	0.191	0.246	0.518	1.410
Switzerland	-	0.671	0.538	2.120	0.817	0.049	0.027	0.153
United Kingdom	0.454	0.394	0.455	0.837	0.092	0.121	0.082	0.097
United States	0.088	0.161	0.311	0.335	0.068	0.059	0.031	0.094

Source: Author's calculation from the Organization for Economic Co-Operation and Development, *Source OECD, International Direct Investment.*

nations was the demographic effect on national savings rates. Large segments of the populations in the developed economies were in the middle of their careers during the 1990s, at earnings level peaks that filled tax coffers and drove down public deficits, and increased savings rates. Lower interest rates in the developed nations attracted capital owners to the higher yielding investment prospects of the developing economies. The 1997 World Bank Policy Research Report suggests the trend also reflects the growing integration of world capital markets and the globalization of investments.[14]

While there are certain benefits to be had from the capital owners in the developed economies investing abroad, they come with certain risks. The shocking realities of the risks faced by capital owners investing in developing nations are often played out through high financial market instability – the worst of which end up as crises. This was made readily apparent with the 1995 Tequila crisis in Mexico, the Asian crisis of 1997-98 as well as the Russian and Latin American crises in 1998-2000. In most cases, crises are the result of massive amounts of financial inflows – especially portfolio flows – not being channeled to the most productive investment opportunities, leading to a progressive deterioration in the balance sheets of the domestic financial sector. Without adequate capital controls to limit the flight of capital, these countries are subject to sudden reversals, which could decimate domestic financial markets. This high volatility reflects the limited depth of financial markets in many developing countries, as well as the maturity mismatch in trying to finance long-term projects with short-

term money.[15] These risks, which have come to rattle the emerging markets in recent years, have certainly undermined investor confidence and hampered the returns to global financial integration. The degree of financial volatility, crises and contagion has made the current state of affairs socially costly and politically disappointing in emerging economies.[16]

To avoid the hardships of capital reversals while continuing to liberalize the financial markets will require developing countries to pursue policies that maximize the benefits from global capital flows and avoid the associated dangers. The World Bank Policy Research Report suggests that developing nations must pursue a sound macroeconomic policy framework, a sound domestic banking system with a supervisory and regulatory framework and a well-functioning market infrastructure and regulatory framework for capital markets.[17] Many countries have made significant changes to their regulatory structures to open their financial markets. But the 1997 World Bank Report contends that many of the countries "lack the prerequisites for a smooth journey, and some may be so ill prepared that they lose more than they gain from financial integration."[18] While the path towards financial liberalization is inevitable with the advancements in communication and new developments in finance, the developing countries may decide at what pace they wish to travel to avoid the potential pitfalls of opening their financial markets.

Getting the economic infrastructure in place in the developing countries of the world is only part of the challenge that both the developed and developing segments of the world face. The countries in the groups listed in Table 7 suggest that there will be a great deal of surplus labor around the world over the coming decades if we can figure out how to tap it effectively.

Those countries where this surplus labor exists in the general geographic proximity of Europe have predominantly Islamic populations. The two largest countries in the Southeast Asian segment, in the geographic proximity of Japan, with the largest populations are the Philippines and Indonesia, again countries with sizeable Islamic populations. At the beginning of the twenty-first century, many of the nations with predominantly Islamic populations seem to be at political odds with many of the nations in the developed world in one way or another. These tensions will have to be resolved in some mutually agreeable fashion if anyone expects there to be significant investment flows from the developed countries to these less developed ones.

Table 7: Working-Age Populations in Various Sections of the World in 2000 and as Estimated by the United Nations for Selected Future Years

	2000	2010	2020	2030	Change from 2000-2030
European Union	229,312	231,239	224,121	205,250	- 24,062
Eastern Europe[a]	185,665	191,725	177,748	157,947	- 27,718
Northern Africa[a]	85,730	113,316	137,611	157,713	71,982
Western Asia including Middle East[b]	92,431	120,024	149,407	178,509	86,078
Region North of Arabian Sea and Persian Gulf and around Caspian Sea[c]	132,886	178,300	226,419	275,691	142,806
Japan	79,074	75,904	68,993	65,070	- 14,004
Australia/New Zealand	13,709	15,258	15,979	16,108	2,399
China	770,108	877,195	914,719	900,254	130,146
India	519,958	645,151	765,617	854,728	334,770
Southeast Asia[a]	275,172	341,031	398,645	433,773	158,601
Canada	18,943	20,911	21,517	20,985	2,043
United States	167,105	186,967	197,288	198,257	31,152
Mexico	51,316	63,492	74,047	80,586	29,269
Central America less Mexico[a]	16,497	22,262	28,745	34,984	18,487
South America[a]	186,693	227,782	259,997	281,967	95,274

Source: United Nations Population Division, *World Population Prospects: The 2000 Revision*.

In various parts of the developing world there are other potential barriers to significant investment by foreign capital owners. These have to do with having in place the legal framework and processes that allow capital owners to invest in opportunities within a reasonable legal framework of regulatory and civil law that is enforced on an evenhanded basis. The legal registration and disclosure requirements on entities based in the developed economies of the world require that business dealings be above board and open to review. There also has to be a statute and case-based legal system that allows disputants in business deals to resolve differences that might arise as a result of investor relationships.

Concerns about the financial markets and the political and legal infrastructures in many parts of the developing world have left many investors cautious about investing in developing markets to the extent that portfolio allocation models suggest would result in optimal diversification. Instead, many foreign investors, in particular, pension funds maintain a "home bias" and invest the greatest portion of their assets domestically. Holzmann reports that in 1995, the earliest data that was available, OECD countries invested nearly 89 percent of their pension assets in their own domestic markets.[19] This is not isolated to only the developed economies, as 99.3 percent of non-OECD pension assets were invested within their own domestic borders. The unwillingness of pension funds to flow abroad to the developing economies is partly the result of investor confidence, but largely the result of restrictions that many countries have regarding the investment of pension assets in foreign securities. As long as these barriers remain, both the

developed as well as developing countries will continue to struggle achieving the benefits that might result from greater integration of the developed and developing economies.

Conclusions

As we put all of the elements of this picture together, the United States is in a better position to weather the aging of its population than virtually any of the other countries of the developed world. We should remain a relatively attractive market for investment much further into the global aging phenomenon than most of the other developed countries and should continue to see foreign flows of capital into our economy. At some juncture, however, the slowdown in our own labor force growth rates will inevitably mean we will suffer the consequences of capital deepening that are already hitting other parts of the developed world. Before that occurs we should pursue policies that will allow us to take our own surplus capital to other parts of the world where there will be surplus labor that can use it effectively.

In order for that to happen on a widespread basis, we should be pursuing policies that encourage the less developed countries to put in place the infrastructure that will allow us to invest in markets that operate efficiently. These countries need capital markets that will allow investment money to flow to its most efficient uses. In places like China, much of the foreign investment money has been siphoned off to bail out inefficient state owned enterprises as the existing regulatory structure limits the access to free market activities. In places like India, there are often bureaucratic hurdles that effectively preclude foreign investment as an option. The hurdles may be different in other parts of the developing world but often have the same result of

limiting the access of foreign investment to opportunities that would reap the greatest returns. Another hurdle that China has had to contend with in attracting foreign investment is the perception that the legal system is ambiguous and that disputes are settled through personal contacts rather than controlled by formal contracts and court enforcement. It scores low relative to the developed countries in regard to corruption and governance indicators. Much the same can be said for other developing countries around the world including some in our own hemisphere. If investing itself is not difficult enough, many developing countries have limitations that make it difficult, if not impossible, to repatriate returns on investment back to the owners' countries. If returns on capital in these developing economies cannot be realized by foreign owners, the likelihood of foreign investment may be a dream that will never be realized.

As we think about the challenges the aging developed world faces within this very decade, we ought to quit concentrating so much of our energies on the immediate reform of social insurance programs in the developing world and help get in place operating frameworks where capital can flow freely to stimulate real economic growth. As it does so, the wages paid to labor will rise in the developing world and standards of living with them. At the same time, the returns on capital will exceed those attainable from overinvestment in the developed world and help to address the retirement financing issues the developed economies now face. As the developed countries realize the rewards of capital infusions that allow their own national incomes to rise, there will be plenty of time to reform their own national retirement systems.

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