HAMMOND ASSOCIATES

Research Note

# *The Impact of an Aging Population*

March 2004

## *Overview*

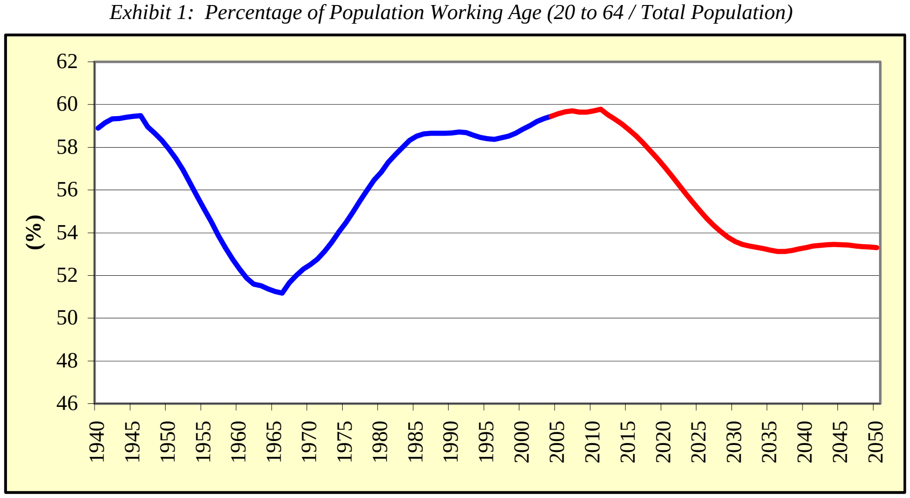
The aging of the US population represents a financial challenge for the coming decades. The effects of longer life spans, the demographic spike from the baby-boom generation, and falling fertility rates, will combine to produce a decline in the working age population percentage and an increase in the dependency ratio (retirees per worker). As this transition takes place, it will test the flexibility of the economy and financial markets.

To compound the issue, the Federal government has established entitlement programs whose commitments to future retirees are far more than current tax policies can bear. It seems unavoidable that major changes are in store. Fed Chairman Alan Greenspan stirred up the hornet's nest in Congressional testimony in February. He testified that entitlement growth (Social Security and Medicare) and current tax policies are incongruent. In an election year, the Chairman's remarks were not well received. This intersection of politics and economics will bedevil us for decades to come.

## *The Pyramid Scheme*

The core of the demography problem is that dependency ratios will be on the rise over the next few decades, meaning that there will be fewer working age persons to support each retiree. With the general expectation of retiring at age 65, the percentage of the population in the US of working age will decline from 59% to 53% over the next 30 years, as shown in Exhibit 1. The challenges we face in the future are best illustrated by examining entitlement programs.

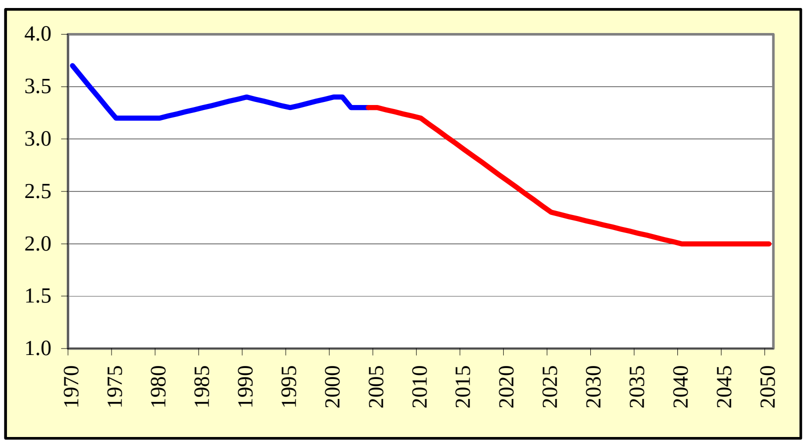
*Exhibit 1: Percentage of Population Working Age (20 to 64 / Total Population)*



Social Security was started in the 1930s as a safety net for retirees. It is a pay-as-you-go system, meaning that current workers pay current retirees' benefits. The problem for the program is that benefits have become more generous through time, largely because life expectancies have lengthened. At the program's creation, the retirement age for full benefits was 65.[1] The average person then wasn't expected to live long enough to receive full benefits (life expectancy was 63). The typical worker who survived to 65 could expect to live another 12 years. Today, life expectancy is 73 years. A person who reaches 65 should live another 18 years. This means that a typical beneficiary will receive benefits 50% longer than at the program's inception.[2]

Social Security is similar to a pyramid scheme in significant ways. The system is sound so long as the number of people contributing to it is growing faster than the number drawing from it. This has been the case since the creation of the program. High population growth from the baby-boom and the increasing participation of women in the workforce led to rapid workforce expansion. However, the tide is about to turn as baby-boomers approach retirement. Within 10 years, the number of retirees receiving benefits will be growing faster than the workforce—and then the problems begin. As a result, there will be a considerable decline in the number of workers paying into Social Security per beneficiary. As shown in Exhibit 2, currently there are roughly 3.4 workers per beneficiary. That will decline to 2.6 by 2020 and to 2.0 by 2040.

*Exhibit 2: Number of Social Security Contributors Per Beneficiary*




Medicare and Medicaid programs also represent staggering future liabilities. Medicare expenditures are currently about a third of Social Security expenditures, but with healthcare inflation and the prescription drug benefit, growth in Medicare will be rapid. The Congressional Budget Office (under their intermediate cost case) forecasts that Medicare will absorb 5.3% of the economy by 2025 and Medicaid will cost an additional 2.1%. By 2050, Medicare and Medicaid will comprise nearly 12% of the economy.

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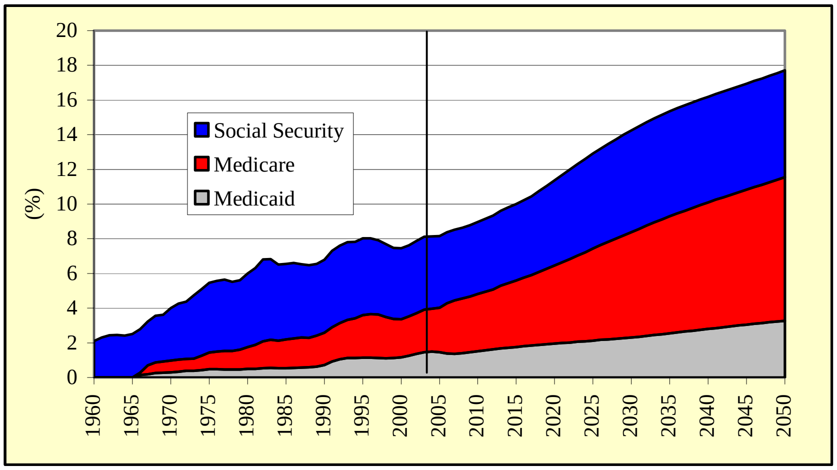
[1] Workers can draw actuarially-reduced benefits beginning at age 62.

[2] Another similarity to a pyramid scheme is that early "investors" fare better than later ones. A two wage-earner couple born in 1920 (with average incomes) received a 3.5% real return on their contribution, far more than was available by investing in Treasury bonds. In contrast, a two wage-earner couple born in 2004 will receive a 1.8% real return on contributions, which will likely be less than what will be available from bonds.

*Exhibit 3: Entitlement Spending's Share of GDP*




In 1983 Congress took steps to address weaknesses in the system. They enacted legislation to gradually increase the retirement age from 65 to 67 beginning in 2003 through 2022 (although still allowing actuarially-reduced benefits at 62). While this was a step in the right direction, by the time it is fully enacted, life expectancies will have increased by more than four years. Congress also increased FICA payroll taxes (Social Security and Medicare) as a way to save and partially "fund" the system. In reality, nothing was saved. The Treasury essentially treated excess FICA taxes as general revenue.[3] The excess contributions were supposedly set aside in the Social Security Trust Fund. However, the trust fund is merely an accounting gimmick. The $1 trillion purported to be in the fund is "invested" in US Treasury bonds, which means that the government is writing IOUs to itself that will have to be paid by future generations.

The effect is clear—to fund promised benefits given current tax policies, the budget deficit is likely to balloon in the coming decades. Otherwise, taxes must increase. In their 2004 annual report, Social Security's trustees estimated that FICA taxes must increase from their current level of 15.3% (including employer contributions) to 20.4% in 2025 and 26.3% in 2050 to keep the system in balance. If tax burdens are increased on workers to support retirees to the extent that will be necessary, it would threaten to reduce the incentive to work, and could lead to a stagnating economy (and to intergenerational conflicts).

A perplexing issue is the low savings rate for US households. The facts that baby-boomers comprise such a large percentage of the population and are in their prime savings years suggest that savings rates should be higher than normal. In fact, the opposite is true. The aggregate savings rate is less than 2%, versus a post-WWII average of 8%. In addition, debt loads are ballooning. There is good news. The net worth of US households is more than five times income, which is healthy by historical standards. A concern is that much of that net worth is in residential housing and equities, both of which are arguably overvalued. A substantial increase in the savings rate poses a risk for the economy over the next decade, especially if investments do not provide hoped-for returns. An increase in the savings rate is prudent for individual households, but if everybody becomes prudent at the same time, the economy could be sent into a major recession.

As distressing as the picture looks in the US, the problem is even worse in many other industrialized nations. Continental European countries have retirement and

[3] The reported Federal budget balance includes excess FICA revenue. If not, deficits would have been worse over the past two decades

medical programs that are more generous than the US. In addition, because of below-replacement-level fertility rates, and restrictive immigration policies, the working-age population in some countries will decline, exacerbating the global aging problem. In Japan for instance, the population aged 20 to 64 is expected to *decline* by 15% through 2025, while the 65-plus population is expected to *increase* 42%. France and Germany will also see declines in the working age population.

## *The Solution*

What can be done to avoid increasing the tax burden on working-age persons? The government could finance the cost by borrowing for a while. However, that obviously isn't sustainable over the long-term. Eventually, interest costs would become a crushing weight on the economy, and private investments would be "crowded-out," due to higher interest rates. The clear, albeit politically painful, solution to the problem is to begin reforming entitlement programs to encourage later retirement ages. Indexing the Social Security retirement age and Medicare eligibility age to life expectancy seems the most prudent course. In an article published in 2003, Rob Arnott and Anne Casscells suggest that the retirement age needs to increase to 73 over the next 30 years to keep dependency ratios at today's level.[4] The fact is that even without an adjustment in the Social Security retirement age, many baby-boomers will have to work beyond 65 to maintain their standard of living.

Some, including the current Administration, propose transitioning Social Security to a system of private accounts. While this wouldn't address the Medicare and Medicaid problem, private accounts have considerable appeal because it would mean moving from a pay-as-you-go system to a funded system. Some part of FICA taxes would go to private accounts, similar to a 401k. The downside is that the transition to private accounts would be costly. Social Security has a several trillion-dollar liability, which would still have to be paid by future workers. A second concern is that most private account proposals would give contributors the opportunity to invest in equities. The thought of US households heavily investing in equities in a program meant to be a "safety net" is unsettling (especially with the transition from defined benefit plans to defined contribution plans in the private sector). Stocks are not a guaranteed winner, even over the long run. In the event of a market crash, there would be significant pressure on the government to bail-out the accounts. This would be at a time when tax receipts are down. It's not good policy for the government to give away put options on equity markets.[5]

From a demographic standpoint, a source of relief would be to enact policies that will increase the size of the workforce. The simplest way is to liberalize immigration policies to attract more young, foreign-born workers. Increasing the size of the labor force through immigration will improve the dependency ratio and relieve some of the stresses on the Social Security and Medicare systems. A larger immigrant workforce wouldn't solve the problem of people living too long into retirement, but it could help to offset the effects of the baby-boomers' bulge. Arnott and Casscells estimate that we will need an additional four million immigrants per year through 2030 (beyond the one million a year already assumed) to keep the dependency ratio at average levels. This level of population growth and the

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[4] Arnott, Robert D., Casscells, Anne. "Demographics and Capital Market Returns." *Financial Analysts Journal*, March/April 2003

[5] Along the same lines, some propose investing part of the Social Security Trust fund in equities to increase the expected return. Since the Social Security Trust fund doesn't really exist, the government would have to sell additional bonds to the public (or foreign national banks) to raise the money. The idea of the government issuing debt to invest in the stock market is disturbing. Not only are tax revenues positively correlated to the equity market, there would also be a temptation to use investments for political agendas. If the US did move to a funded system, the most prudent course would be to invest in assets largely outside the US to provide better diversification to tax revenues. Of course, such an approach would not be politically feasible.

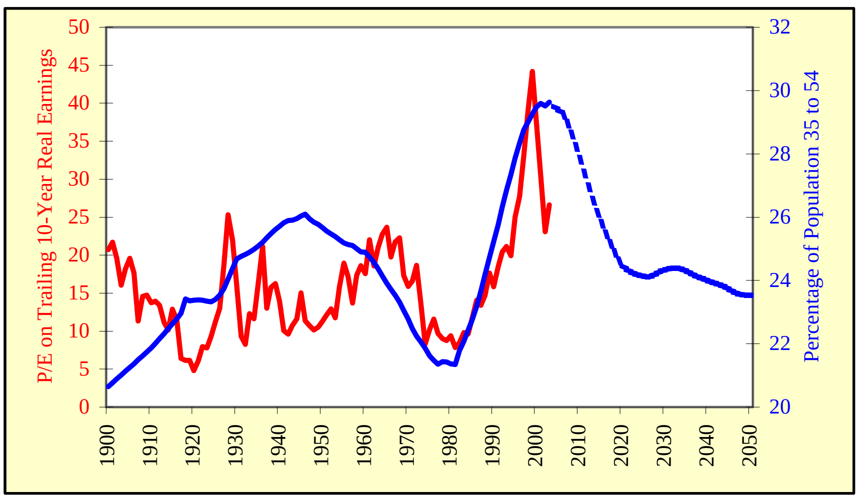
concomitant demand for goods and services could have other positive economic effects, as well. Another factor that could improve the situation is higher than expected wage growth due to high productivity gains. If the US can continue to achieve the 3% plus productivity gains attained since the mid-90s, real wages will grow strongly. As a result, a lower than expected FICA tax rate would be required to service future commitments.

## *Effects of Demographics on Asset Performance*

It's difficult to predict what effects the aging population will have on asset performance. The shift in demographics should not have a material effect on the Federal budget until after 2010, and it will be much longer before the effects are serious. As such, it is foolhardy to make dramatic changes to a portfolio at this time based on these factors. There is, of course, still time for the situation to be corrected or to take an unexpected turn. When dealing with the complex and chaotic nature of the economy and capital markets, problems and their apparent solutions will have unforeseen effects. Nevertheless, some broad themes can be drawn.

The shift in demographics appears to present downside risk for equity markets. A concern is that baby-boomers approaching retirement will reduce equity allocations to reduce risk exposure. In the 1990s, a number of observers suggested that baby-boomers were driving the stock market higher as they prepared for retirement, ultimately leading to the bubble (see Exhibit 4). However, over the next couple of decades, baby-boomers, along with the defined benefit pension plans supporting them, may look to reduce risk exposure by cutting stock holdings. Consequently, there could be a shortage of capital available for risk taking. This, in turn, would mean a higher cost-of-capital for equities and lower P/E ratios. A counterargument made by Professor Jeremy Siegel is that foreign investors, especially those in emerging market countries who will be awash in dollars because of a continued trade surplus versus the US, will step in to provide capital.

*Exhibit 4: Percentage of Population 35 to 54 Versus Shiller's Normalized P/E Ratio on the S&P 500*




There may be opportunities within equity markets to capitalize on the demographic shift. Healthcare is the most obvious area, given the expected increase in medical spending over the next few decades. However, healthcare companies already trade at a premium to the S&P 500, which means that some part of this may already be priced into the market. Another risk for healthcare is government tampering. Since a substantial part of healthcare expenditures will be paid through Medicare and Medicaid, the government will have an incentive to increase regulation of the industry.

Since many other industrialized countries are experiencing even worse demographic issues than the US, investments in these countries will be facing even stronger headwinds. A positive aspect of developed international markets is that they are trading at more attractive valuations than the US market. Emerging market countries offer more promise, since their populations are younger and their fertility rates are higher. Of course, emerging market investing means far more exposure to other risks.

The implications are unclear for fixed income markets. One line of reasoning is that high budget deficits in the future will drive real interest rates up, leading to poor fixed income returns. In addition, the government may have an incentive to print money to cause inflation, thus lowering the real value of outstanding debt. A counterargument is that baby-boomers will favor fixed income over equities and will bid up fixed income prices, leading to lower real interest rates. Regardless, the risk of inflation argues for overweighting inflation-protected fixed income securities and other inflation-hedging real assets (e.g., oil & gas). Given current interest rates, investors in nominal bonds are not well compensated for taking inflation risk.

The demographic shift also appears to present downside risk for both residential and commercial real estate (particularly office buildings). Residential real estate prices have exploded over the past decade as mortgage interest rates have declined. Now that nearly 70% of households own homes and the prime home-buying demographic cohort (30 to 39) is reaching a trough, there may be fewer net new buyers. Furthermore, some baby-boomers may look to trade-down their homes in retirement and tap some of their home equity. For commercial real estate, the slow expected growth in the workforce will present challenges. AEW, a real estate advisor, estimates that current office space vacancies could take more than 10 years to absorb given workforce expansion estimates.

## *Conclusions*

The demographic shift occurring in the US and other developed markets presents a significant challenge. The ramifications of this are difficult to forecast. If we take a proactive approach to the problem by extending retirement ages, the issue may be diffused. On the other hand, if we ignore the problem, solutions will be even more painful down the road. To some extent, the difficulty may be partially self-correcting—people will be forced to work longer because of insufficient savings to support longer life spans. That should keep the dependency ratio from becoming as dire as the projections suggest.

The US appears to be in the best position of the industrialized countries to handle the coming problems. US retirement benefits and other social programs are much less generous than their European counterparts. Furthermore, the US should continue to experience a growing working age population (albeit slower than in the past). Conversely, Japan and many European countries will experience declines in the working age population. In addition, the US economy tends to be far more flexible than other industrialized nations. During major structural shifts, flexibility is key to emerging stronger. A final advantage is the US will have an opportunity to learn from Continental Europe and Japan, since they will be facing the problem earlier.

As for investment implications, given the complexity and time frame of the issue, it's hard to predict the effects on specific asset class returns. The demographic problem may have solutions, opportunities, and consequences that we cannot envision at this time. Nevertheless, with valuations already in the stratosphere, there appears to be further downside risk for equities. Retiring baby-boomers may look to reduce their equity allocations in favor of bonds, which could push P/E multiples down. Nominal bonds also seem to be at risk. Given high projected Federal and household debt loads, inflation may be an irresistible policy to reduce the real value of outstanding debt. We continue to recommend that clients diversify and reduce the reliance on public equities and standard fixed income investments.

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