

The American Stock Market as a Financial Risk

A Paper from the Project on Development,
Trade, and International Finance

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A Council on Foreign Relations Paper

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FOREWORD

In the wake of the 1997–98 financial crises in emerging economies, many prominent thinkers focused their energies on what went wrong, how it could have been prevented, and what reform measures are required for the future. While some concentrated specifically on financial markets within the economies in question, others examined the larger system-wide implications. The Council on Foreign Relations Project on Development, Trade, and International Finance convened a Working Group in an attempt to look at the problem from both levels, to investigate the problems in the world economy that led to the crises, and to propose policy options calculated to prevent future large-scale disturbances.

Specifically, the goal of the Working Group, which began in 1999, was to promote discussion of different perspectives about the necessity for change in the world economic system, and to look at concrete forms that change might take. These included, but were not limited to, discussions about reforming the international financial architecture to facilitate a transition from export-led growth to internally or regionally demand-driven development strategies that offer the populations of the developing world an improved standard of living.

One of the Working Group's several undertakings was to commission papers from the participants on a broad range of subjects related to the international financial architecture. The authors come from a variety of backgrounds, and their papers reflect a diversity of perspectives. However, we believe that all of them provide useful insights into international financial architecture, and that they represent collectively factors that should be considered by both U.S. and international economic policy makers.

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INTRODUCTION

From the standpoint of crisis anticipation, standard macroeconomic forecasting and risk management methods share three weaknesses. First, standard methods embody very little of our experience and understanding of the information and liquidity-driven herding and contagion behavior that characterize crises. Second, the models are distinctly country-centric. A disaster outside an economy that benefits domestic markets will often result in econometrically estimated parameters that suggest the benefits are the consequence of domestic policies and events. Accordingly, crisis probabilities in the tails of outcome distributions may be much higher than estimated. Third, standard methods are not well suited to assessing macroeconomic trends when large economic restructuring changes are under way. If one part of an economy consists of shrinking “old economy” sectors that are no longer competitive and represent, say, two-thirds of GDP, macro models will overestimate the effectiveness of traditional monetary and fiscal policy measures. Japan is undergoing such a restructuring. Not surprisingly, *ex ante* estimates of fiscal and monetary policy effectiveness repeatedly turn out to be overestimates.

¹The authors are grateful for extensive comments and guidance from working group members, and others, and the assistance of Joel Prakken and Chris Varvares of Macroeconomic Advisors. The views and findings presented in this paper, however, are solely those of the authors.

Effective macroeconomic and risk management models are critical. A record low proportion of U.S. private wealth is held in the form of deposits that are both liquid and have a known fixed value, and a record high proportion of assets are invested in volatile securities and defined-contribution (rather than defined-benefit) retirement plans. The consequences of a large negative surprise have never been greater.

Sources of Risk

We see the U.S. economy and stock market as exposed to two sources of real sector risk: (1) Diminishing returns for Asian and European import-substitution and export-led growth strategies, and for the mechanics of U.S. current and capital account flows. (2) The aging of industrialized-economy populations and the significant undersaving of households and the underfunded² condition of public retirement support programs. These are generally thought of as very long-term processes that could have no immediate effect on markets. In our judgment, this perception is likely to be wrong. In fact, we believe they are affecting markets now.

The first risk source encompasses the production-consumption and investment-savings relationships that sustained the United States and its allies throughout the Cold War decades. They are also reflected in U.S. current and capital account flows. These relationships have been undergoing historic change in the past decade. In this paper, we refer to this group of economic and geopolitical events as the “post-Cold War transition.”

The second risk source includes imbalances resulting from the undersaved condition of American households and the underfunded condition of national retirement and healthcare commitments. Birth and growth rates in industrialized countries have been declining without comparable reductions in pension and healthcare benefits, which means that all the major industrialized countries face generational accounting imbalances. This is a very

²In this context, “underfunded” means that program assets and liabilities are unmatched in an actuarial accounting sense, not that policymakers have failed to appropriate adequate revenues to fund the programs.

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important kind of financial leveraging. American households will almost certainly have to increase savings rates to assure secure retirements. In this paper, we refer to this effort of households to meet their retirement wealth needs as “generational deleveraging.”

Both risks are linked in a critically important way. U.S. Treasury Secretary Lawrence H. Summers referenced the linkage in the opening paragraphs of his speech on global financial reform just before the September 1999 International Monetary Fund/World Bank meetings.

Supporting successful economic development in the developing world has always been—and will remain—an overriding global moral imperative. But it takes on increasing economic significance for the industrial countries today, when retirement rates in these nations are rising, rates of labor force growth are decreasing, and the investment of retirement savings is a key concern. All of the world’s population growth over the next twenty-five years, and most of its growth in productivity, will take place in the developing world.³

As productivity rises in the developing world, so do returns on capital that could exacerbate necessary U.S. current and capital account adjustments. However, the large pools of more productive young people in the developing world could ease the equally necessary adjustments of generational imbalances in the developed world.

Asian Downturns, Herding, and Contagion

The historical foundations of the Asian crises are now widely recognized. Barry Eichengreen explored them with particular scrutiny and concluded, “. . . Asia’s crisis can only be understood in terms of a conjuncture of long-standing historical forces and short-term financial policies.” Eichengreen observed specifically:

Ultimately, the explanation for the crisis lies in the region’s history and economic development trajectory, which relied on bank-centered financial systems, the use of the banks as instruments of indus-

³Lawrence H. Summers, “Priorities for a Twenty-First Century Global Financial System,” Remarks at Yale University, New Haven, Connecticut, September 22, 1999.

trial policy, and close connections between banks and politicians, all of which were designed to sustain high rates of investment and rapid economic growth.⁴

This paper is motivated by a concern that Eichengreen's conclusions and observations about key Asian financial systems may also be true in important ways about the U.S. financial system. In the U.S. case, however, *the central relationship would not be between banks and businesses via bank credit, but between the U.S. stock market and undersaved households.*

There are many ways to talk about stock market risk. U.S. Federal Reserve Chairman Alan Greenspan identified two aspects of asset pricing risk: adverse event probability distributions and balance sheet instabilities. Regarding event distributions, he observed:

Probability distributions estimated largely, or exclusively, over cycles that do not include periods of panic will underestimate the likelihood of extreme price movements because they fail to capture a secondary peak at the extreme negative tail that reflects the probability of occurrence of a panic. Furthermore, joint distributions estimated over periods that do not include panics will underestimate correlations between asset returns during panics. Under these circumstances, fear and disengagement on the part of investors holding net long positions often lead to simultaneous declines in the values of private obligations, as investors no longer realistically differentiate among degrees of risk and liquidity, and to increases in the values of riskless government securities. Consequently, the benefits of portfolio diversification will tend to be overestimated when the rare panic periods are not taken into account.⁵

And, regarding balance sheet effects:

As the value of assets and liabilities have risen relative to income, we have been confronted with the potential for our economies to exhibit larger and perhaps more abrupt responses to changes in fac-

⁴Barry Eichengreen, *Toward a New International Financial Architecture, A Practical Post-Asia Agenda* (Washington, D.C.: Institute for International Economics, 1999), p. 162.

⁵Alan Greenspan, "Measuring financial risk in the Twenty-First Century," at conference sponsored by the Office of the Comptroller of the Currency, Washington, D.C., October 14, 1999, p. 2.

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tors affecting the balance sheets of households and businesses. As a result our analytic tools are going to have to increasingly focus on changes in asset values and resulting balance sheet variations if we are to understand these important economic forces. Central bankers, in particular, are going to have to be able to ascertain how changes in the balance sheets of economic actors influence real economic activity and, hence, affect appropriate macroeconomic policies.⁶

Financial risk from our perspective arises from negative surprises that move from the real to the financial sector. Over time, the foundation for financial problems are laid when financial sector and asset price conditions diverge from the underlying real sector economic and political conditions. At some point, asset prices realign with the real sector. The realignment is a crisis if the asset price adjustment significantly increases unemployment, reduces growth, or destabilizes political processes. Generally, this occurs when some informational or liquidity shock surprises the financial sector and triggers a sudden and large price adjustment.

Such adjustments are asymmetric in the sense that the prices decline much more rapidly than they rise. In such cases, gray-haired market participants like to observe that, “Prices fall three times faster than they rise.” The price movements are nonlinear in that as they occur they seem to take on a life of their own, triggering within-market “herding”⁷ and cross-market “contagion”⁸ that are mutually amplifying.⁹

⁶Alan Greenspan, “New challenges for monetary policy,” Symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming, August 27, 1999.

⁷Christopher Avery and Peter Zemsky, “Multidimensional Uncertainty and Herd Behavior in Financial Markets,” *American Economic Review* 88, no. 4 (September 1998), pp. 724–47.

⁸Laura Kodres and Matthew Pritsker, “A Rational Expectations Model of Financial Contagion,” FEDS Working Paper 1998-48, U.S. Board of Governors of the Federal Reserve System, 1998.

⁹The author’s view that herding and contagion in declining markets are mutually amplifying is not a specific conclusion of either Avery-Zemsky (AV) or Kodres-Pritsker (KP). AV focuses on multidimensional uncertainty within a market and concludes that trader perceptions of deterioration in information quality can lead to significant, short-run mispricing. KP focuses on contagion through cross-market hedging of shared macroeconomic risks and concludes that the pattern and severity of contagion depends on markets’ sensitivities to shared risks and information asymmetry.

Assessing whether the U.S. stock market poses a financial risk requires identification of the significant potential divergences between financial asset prices and real sector conditions. We must also note why financial markets may be underpricing the divergence. To do this, we first discuss two long-term real sector trends that may not be fully reflected in current or projected U.S. financial market conditions. We then look at a carefully modeled macroeconomic forecast of the U.S. economy that assumes a 30 percent stock market decline, and we note its rather benign longer-term effects under standard economic response assumptions. Focusing specifically on its projected personal savings rate, we outline how there may be a real/financial sector divergence. The scale of the divergence could cause an asset price adjustment of significant proportions.

TRADE, DEVELOPMENT, AND THE POST-COLD WAR TRANSITION

Many stock market skeptics point to U.S. current and capital account flows and conclude that current U.S. stock market valuations are not sustainable. The restructuring recoveries under way in Europe and in all the Asian countries (possibly including Japan) are said to mean that the amounts of capital inflows previously directed toward the United States can be maintained only if U.S. interest rates go up. Higher rates, they argue, will cause the broad stock market to fall.

The rebuttal to this argument generally consists of the observation that if U.S. growth is reduced by economic growth in the rest of the world, more capital will be allocated within the U.S. stock market to sectors that serve this growth and less to U.S. consumption. Proponents of this view argue that consumption-related stocks will decline, while capital goods and other development-related stocks will rise. They conclude that such an outcome may be hard on the owners of shares in Internet companies that are basically consumer marketing schemes, but that this

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is hardly a reason to be concerned about a general equity-market collapse.

However, this rebuttal may not be correct if U.S. current and capital account imbalances are part of a larger historic process that is significantly adverse to U.S. consumption and is not reflected in standard macroeconomic forecasts or current financial asset prices. This would be the case if the Asian crises of the 1990s and the U.S. current and capital account imbalances were understood to be linked consequences of the end of the Cold War geopolitical strategic consensus. From this perspective, the Asian downturns may foreshadow a U.S. consumption contraction. Indeed, it may not be possible for Asian restructuring downturns to occur without a U.S. restructuring occurring also.

As we noted earlier, Eichengreen, among others, has stressed the historical foundations of Asia's downturns. The likelihood that the development of the U.S. economy and financial system was not also influenced by similar historical priorities is hard to dismiss. In the U.S. case, the central risk relationship is likely to be asset market buoyancy and undersaved households.

In the following section we lay out an interpretation of the economic events of the 1990s in which current U.S. conditions are seen as components of a longer post-Cold War restructuring process. Because standard risk management and macroeconomic models do not treat the Asian downturns and other economic restructuring crises as linked within a longer-term process, parameter estimates may not adequately reflect true risk levels.

Import and Export Strategies for Growth

There is general agreement that import-substitution and later export-led growth strategies were key ingredients of the recovery and economic development plans of World War II-scarred Japan and Germany, as well as other Western ally countries surrounding the former Union of Soviet Socialist Republics and China. This was particularly clear in Asia from the 1950s into the early 1990s. Japan, followed by the Asian Tigers and the Newly Industrializing Countries in "flying geese formation," successively pursued national plans to substitute domestic production of basic goods for

imports and then moved up the production chain to maximize growth through exports to the developed world.

There is also general agreement that the United States served initially as a capital provider and then as the linchpin importer/consumer-of-last-resort to support these recovery and development strategies. In the 1950s, the United States met the early capital needs of its Cold War allies through grants, development loans, and defense arrangements. At the same time, the de-emphasis of saving and the encouragement of consumption, even to the point of providing tax deductions for consumer credit interest expenses, supported the evolving export-led growth strategies of U.S. allies. The high-production, high-savings strategies of the recovering and developing countries were matched by a high-consumption, low-savings strategy in the United States.¹⁰

The cooperative mirroring of economic and geopolitical needs is reflected in the following table. In the early decades of the Cold War the United States and U.S.-backed international financial institutions were net suppliers of capital to Iron Curtain allies to finance recovery and import-substitution development strategies. As these countries stabilized and shifted to export-led growth strategies, U.S. trade deficits appeared and then deepened, and U.S. dependence on allied capital inflows became established.

¹⁰Following World War II the United States plunged into a recession severe enough to trigger fears of a renewal of the Great Depression. Washington responded with a Keynesian spending program that included the GI Bill, boosting consumption and restoring the economy to positive growth.

Capital and Trade Flows from the United States to "Iron Curtain" Allies¹¹

(% of Allied GDP and U.S.\$ millions)

Allies	Five-year Periods, yearly average										
	46-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-98
Capital Flows											
European*	1,118	960	439	506	142	-468	-1,299	-4,725	-6,388	-1,260	-32,647
Asian**	613	757	955	1,430	951	673	-94	-5,747	-28,951	-21,054	-64,502
Trade Flows											
European		654	611	856	-427	-1,706	-2,349	-5,263	-19,500	-15,741	-30,024
Asian		598	899	638	-92	-4,073	-13,063	-32,833	-83,898	-69,298	-70,426
Allies											
	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-98	
Capital flows as % of GDP											
European*	1.9%	0.5%	0.4%	0.1%	-0.1%	-0.1%	-0.4%	-0.4%	-0.4%	-0.04%	-0.9%
Asian**	3.5%	2.7%	1.8%	0.6%	0.2%	-0.01%	-0.4%	-1.1%	-0.5%	-1.2%	
Trade Flows as % of GDP											
European	1.3%	0.7%	0.6%	-0.2%	-0.4%	-0.3%	-0.4%	-1.1%	-0.5%	-0.8%	
Asian	2.8%	2.6%	0.8%	-0.6%	-1.1%	-1.5%	-2.5%	-3.2%	-1.6%	-1.3%	

* Germany, Austria, Italy

** South Korea, Japan, Taiwan, Hong Kong

¹¹The underlying data and sources for this table are extensive and are available as an Excel spreadsheet upon request. The authors are indebted to and deeply appreciate the unstinting efforts of Mr. Dong Zhang for gathering the data and preparing this table under the auspices of a Tudor Graduate Internship.

There is also general agreement that this system of export-to-the-United States and United States-buy-from-its-allies started to break down in the 1990s. Robert Blecker thoroughly describes the diminishing marginal returns to export-led growth and pinpoints the zeroing out of the strategy as occurring some time in the mid-1990s.¹² In our judgment, Blecker rightly criticizes as incomplete the U.S. and other G-7 explanations that the Asian downturns of the mid-1990s were mainly the result of “crony capitalism,” inadequate financial supervision, and a lack of transparency. Of course, the downturns were partly due to these factors, but the important question is how “Asian miracle workers” became “crony capitalists” in a matter of three or four years. Something is missing in the conventional analysis.

Blecker suggests the missing item is a “fallacy of composition” effect of so many countries attempting the same strategy. Marginal returns decline and perhaps even become negative, thus undermining financing structures. We agree and see Blecker’s composition-fallacy as part of a larger historic process. For us, what Blecker says about the Asian export strategies is also a statement about the U.S. consumption strategy.

We are not surprised to look back and see that the United States pursued increasingly consumption-maximizing and savings-minimizing strategies throughout the Cold War decades. Our understanding of political science leads us to conclude that national security is the highest domestic political priority. For example, the United States pursued a high-production, high-savings strategy to win World War II, essentially focusing on out-producing its enemies. In contrast, the United States’s Cold War-era high-consumption, low-savings strategy won because it essentially out-consumed China and the Union of Soviet Socialist Republics (U.S.S.R.). The United States was able to support its allies in a recovery, development,

¹²Robert Blecker, “The Diminishing Returns to Export-Led Growth,” paper presented to the Working Group on Development, Trade, and International Finance (New York: Council of Foreign Relations, October 7, 1999) and published as a part of a series by the CFR Project of the same name.

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and growth process that exhausted the U.S.S.R. and forced China to change its policies on inward investment.

The post-Cold War (PCW) hypothesis implies that the matching consumption-led and export-led strategies pursued by the United States and its Cold War allies was optimal for addressing the priority of winning the Cold War, but not for a non-war environment. The magnitude of the Asian adjustments since the end of the Cold War suggests that Asian economic, financial, and political frameworks were not optimal for a postwar environment. Apparently, as soon as the Western capital markets and democracies were not required to prop up those frameworks, they ceased doing so and “Asian miracles” became “crony capitalism”.

During the Cold War years, the United States would not have let the yen strengthen as it did in the mid-1990s, to the point that it nearly wrecked the Japanese economy. Nor would it have been as unconcerned in the Cold War years as it was in the mid-1990s that economic conditions were destroying political leadership of the LDP, Japan’s long-time dominant political party. In the 1990s, the leading Western democracies became willing to allow the “invisible hand” of markets to take over from the “guiding hand” of allied-government Cold War strategy. After the fall of the Berlin Wall, it became acceptable for markets to determine the fate of Asian and European export-led economies.

Old and New Economies

A central idea of the PCW transition is the distinction between “old” and “new” economies. Few analysts disagree that the problems in the East Asian economies seem to be most serious in the heavy industry, small manufacturing, agriculture, construction, and retailing sectors. These sectors were the foundations of import-substitution and export-led growth strategies during the Cold War decades, and they comprised two-thirds or more of GDP. They were heavily subsidized, trade protected, and regulated. Such sectors are what we meant when a decade ago we referred to “Japan Inc.” Now, these sectors are what we mean when we refer to “old Japan.” In all the Asian countries the shrinkage (even collapse in some instances) of the “old” sectors threatened the private and pub-

lic institutions that financed them and the political systems that organized them.

Moreover, no one disagrees that “new” sectors such as communications, information technology, professional services of all kinds, biomedical research, and high-end design and manufacturing are growing strongly in all the Asian countries. Because these sectors represent only about one-third of GDP, however, their rapid growth is not enough to offset the negative GDP effect of the “old” contracting sectors.

Is there an “old” versus “new” issue in the U.S. economy? On this point there would be very heated disagreement. Most economists and analysts believe the U.S. economy is very “new” in every respect. The prevailing view is that the banking system has been reformed, old industries have been restructured, and the bulk of GDP is represented by “new” information and service oriented businesses.

The risk to the U.S. stock market is that this view is not correct, and that what is “old” about the U.S. economy is its consumption orientation. Estimates vary but there is general agreement that almost 70 percent of GDP consists of consumption. If the PCW hypothesis is correct, we need to consider the ongoing priority on consumption in the United States as being a mirror of the Asian import-substitution and export-led growth strategies.

Implications for Europe and Asia

If the PCW transition risk is plausible, it should have some applicability to Germany and Italy, two key European Cold War countries, as well as to Japan and other Asian ally countries. Important similarities should surface between Japan, guarding the eastern front of Communist Eurasia, and German and Italy, guarding the Western front.

One similarity is evident in the nature and scale of their old-age care promises. An important element of the recovery and development strategies of key U.S. Cold War allies was the assurance to workers that their retirement needs would be well covered. The result is an imbalance between the tax burdens on younger and older generations to pay for the benefits. The PCW hypothesis suggests

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that the Japanese, German, and Italian imbalances should be larger than those of other industrialized countries. Laurence Kotlikoff and Willi Leibfritz provide the following estimates of these imbalances.¹³

Generational Imbalance in Real Terms Relative to U.S. GDP

(Per Capita, 1995 U.S. dollars)

Japan	\$300.9 thousand
Germany	\$203.9 thousand
Italy	\$197.1 thousand
France	\$101.7 thousand
United States	\$ 45.3 thousand
Canada	\$ 3.4 thousand

The Japanese, German, and Italian imbalances are notably higher. Though fragmentary, the data suggest that the farther a country is from a former Communist border the lower its imbalance is likely to be.

From the European Central Bank (ECB) we get confirming data from another perspective.¹⁴ In very rough terms, “old” sectors of advanced countries are primarily industrial and government-related, and they are financed by banking systems rather than securities markets. Thus, the larger the share of industrial production, government, and bank deposits in the economy, the “older” or less restructured it is likely to be. From the January 1999 ECB monthly bulletin:

Industrial sector as a percentage of GDP

U.S.	26%
Euro 11	31%
Japan	39%

¹³Laurence Kotlikoff and Willi Leibfritz, “An International Comparison of Generational Accounting,” in Alan Auerbach, Laurence Kotlikoff, and Willi Leibfritz, eds., *Generational Accounting Around the World* (Chicago: University of Chicago Press, 1999), pp. 73–103.

¹⁴European Central Bank, “The Euro Area at the Start of Stage Three,” in European Central Bank *Monthly Bulletin* (January 1999), pp. 11–13.

Government as a percentage of GDP

U.S.	36%
Euro 11	47%
Japan	33%

Bank deposits as a percentage of GDP

U.S.	55%
Euro 11	84%
Japan	99%

Service sectors are also generally thought of as “new” economically, dynamic and capable of creating many new jobs. On this measure too, the Euro 11 lies between the United States and Japan.

Size of service sector in economy as a percentage of GDP

US	72%
Euro 11	67%
Japan	59%

The PCW hypothesis says the financial crises of the past ten years are linked and form a pattern of post–Cold War economic and political restructuring. The collapses of the Asian Tigers, the Japanese recession, and slow European growth all reflect the rapid shrinkage of economic sectors that were important to Cold War strategies. Economic sectors essential to maintaining full employment and the banks that financed those sectors in Japan and Asia all saw growth plunge and losses mount. By implication, key import–substitution and export–led growth sectors in Germany and Italy, as well as the banks that financed them, may face contraction and increasing difficulties.

Implications for Japan

The PCW hypothesis emphasizes analysis of a country’s economic sectors in addition to its more familiar macroeconomic trends. Such an analysis offers a fuller understanding of Japan’s mounting debt problem. Examined through a sectoral lens, a “debt trap” rather than “liquidity trap” seems to be a more accurate and useful description of what is plaguing Japan’s economy.

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The Japanese government's long-held hope for generating an economic recovery is that it will be able to "pass the baton" to the private sector via a self-sustaining economic recovery produced by "new Japan." However, despite the largest peacetime injection of fiscal stimulus in postwar history, the economy nominally has contracted in eight of the last ten quarters. Moreover, most "new Japan" enterprise ventures have yet to make any real money (i.e., operating profits), and "old Japan" industrial bankruptcies are running at a rate of nearly 3 percent of GDP.¹⁵

Modeling the economy as two sectors, old and new Japan, highlights the workings of the PCW hypothesis and the nature Japan's problem. From data on nonperforming bank and prefectural government debt, we know which sectors are contributing to the debt problem. Nonperforming loans and bankruptcies are concentrated in the agriculture, manufacturing, construction, and retailing-related sectors. These sectors, and all their related households, businesses, and government activities, were the foundation blocks of Japan's Cold War-era import-substitution and export-led growth strategies. U.S. compliance and participation built them up to massive levels to assure success in the competition with the U.S.S.R. and the People's Republic of China. The commitment level made geopolitical sense before 1990, but not afterward.

From the 1950s into the early 1990s, Japan's laws, financial institutions, and economic practices were focused on building the agriculture, construction, retailing, and manufacturing sectors into an economic powerhouse we used to call "Japan Inc." Loans and credits from commercial banks, the postal savings system, fiscal investment and loan systems, and the central and prefectural governments financed these sectors. This is the credit architecture that fell into nonperforming status in the early 1990s and by 1998 brought down the banking system. Credits extended by prefectural governments are now crippling local governments. To keep the mountain of debt from toppling, the central government has

¹⁵David Asher and Robert Dugger, "Could Japan's Financial Mount Fuji Blow Its Top?" MIT Japan Program, Working Paper Series 00-01, May 2000.

had to guarantee banking system and local government solvency, as well as shoulder the burden alone of further borrowing.

The debt mountain continues to grow rapidly for two reasons: first, interest on the existing debt can be paid only by borrowing more; and second, the “Japan Inc.” economic sectors constitute the bulk of Japan’s GDP and are shrinking. Of the two reasons, the second is the more important and the least understood. The “Japan Inc.,” now “old Japan”, economic sectors are dragging down Japanese GDP. “New Japan” is growing rapidly, but its GDP share is too small for its growth to offset the shrinkage of old Japan. Old Japan’s shrinkage is desirable and necessary from an economic restructuring standpoint, but it has a powerfully adverse effect on Japan’s debt mountain. The shrinkage drags down national GDP and forces the government to borrow and spend enough to offset the negative effect.

The following tables illustrate the interaction of old and new Japan, including an “interim Japan” consisting of the small portion of GDP represented by sectors that are not adding to GDP and are in the process of actively restructuring.¹⁶ We estimate that old Japan constituted about 80 percent of GDP in the mid-1990s and has been shrinking 3 to 4 percent per year. The contraction in 1998 following the Asian downturns was particularly violent. So violent in fact that the fiscal stimulus needed to stabilize the economy in 1999 was almost enough to cause old Japan to grow. In 2001 and beyond we assume old Japan’s contribution to GDP is negative, but less so each year.

We estimate new Japan constituted about 20 percent of GDP in 1996, and project its growth rate will increase steadily from 7 percent in 1996 to 15 percent in 2001 and decline thereafter.

¹⁶Several commentators on an earlier draft of this paper pointed out the existence and function of this third component of GDP. It consists of businesses, households, and government entities that are in transition from dependence on noncompetitive export-led growth strategies to non-Cold War-era domestic growth strategies. A Bank of Japan commentator estimated Interim Japan now accounts for about 10 percent of GDP.

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Old Japan, New Japan Sector Effect on GDP (Trillions of Yen and % of GDP)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Nominal GDP	503.8	505	494.5	493	500	505	510.1	515.2	520.3	525.5
Old-Jpn GDP Share	8.0%	7.9%	6.7%	6.7%	6.3%	6.0%	5.8%	5.6%	5.4%	5.3%
Old-Jpn Growth Rate	-1%	-15.0%	10.8%	-1.0%	-5.0%	-4.5%	-4.0%	-3.5%	-3.0%	-2.5%
Int-Japan GDP Share	1.0%	0.5%	10.8%	9.8%	11.0%	9.9%	8.8%	6.9%	6.0%	4.9%
Int-Japan Growth Rt	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
New-Jpn GDP Share	10%	20%	22%	24%	26%	30%	33%	37%	40%	42%
New-Jpn Growth Rate	7.0%	7.0%	7.5%	8.0%	9.0%	15.0%	12.0%	12.0%	7.0%	6.0%
Fiscal Stimulus Needed to Offset Old/New Japan Effect (Trillions of Yen)										
Nominal Target GDP	503.8	505	494.5	493	500	500	500	500	500	500
Old+New GDP	498.8	502.6	441.0	444.9	445.2	454.8	465.1	479.8	489.3	499.6
Needed Fiscal Stim	2.4	2.4	53.5	48.1	54.8	50.2	45.0	35.4	31.0	25.9

Total Public Sector Borrowing (Fiscal Stimulus plus Interest Expense)

	1997	1998	1999	2000	2001	2002	2003	2004	2005
Needed Fisc Stimulus	2.4	53.5	48.1	54.8	50.2	45.0	35.4	31.0	25.9
Interest on Existing Debt @ 4%	18.4	19.2	22.1	24.5	27.2	31.4	36.3	42.0	50.8
Total Borrowing Need	20.8	72.8	70.1	79.3	77.4	76.3	86.7	87.0	95.7
Total Pub Sector Debt		551.4	613.0	679.6	757.0	833.3	920.0	1007.0	1102.7
Total Public Sector Debt/GDP		124%	124%	136%	151%	167%	184%	201%	221%

Public Pension Assets and Deficits

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Pub Pension Assets	85	95	76	51	30	17	3	-12	-26	-45
Pub Pension Deficits								15	14	19

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In this projection, to keep GDP at roughly 500 trillion yen, total central and local government deficit spending has to remain between 40 and 50 trillion yen through 2002. The emergence of pension deficits in 2003 and beyond keep the total public sector borrowing needs above 70 trillion yen through 2005.

As shown in the projection, the sum of Japan's central and local government bonds and borrowings will approach 140 percent of GDP in 2000, and be over 220 percent in 2005. This debt growth is the sum of borrowing to cover the interest expense on existing debt, borrowing to finance spending to offset the "new-old Japan" negative GDP effect, and more borrowing to pay the interest on new rounds of borrowing.

A worrisome aspect of Japan's debt situation is the fact that it is worsening at a time when global growth, led by a record-setting U.S. economy, is generally strong. The U.S. role is critical. Just as it did during the Cold War years, the United States for the past decade has served as the importer-consumer of last resort. This role stabilized the global economy following the Mexican, Asian, and Russian crises, and has enabled many nations to preserve democratic stability and initiate needed reforms.

For the United States, the role of global growth engine has driven its trade and current account deficits to record levels. Moreover, it has triggered a steady round of U.S. Federal Reserve rate increases to prevent inflation and led to G-7 fears of an unsustainable situation, as well as calls for the United States to increase savings. If the Federal Reserve is successful and G-7's (including the U.S. Treasury's) calls for increased savings are heeded, the U.S. economy must slow and import growth rates must decline. For Japan, and Asia generally, a slowing of U.S. imports is serious risk.

Asia's dependence on U.S. imports has risen sharply since the mid-1990s. South Korea's exports to the United States accounted for 21 percent of its total 1999 exports, up from 16 percent in 1996. Of the large Asian nations, China (including Hong Kong and Taiwan) is the most dependent on the U.S. economy. Exports to the United States in 1999 totaled almost 27 percent of all Chi-

nese exports, up from 17 percent in 1996.¹⁷ A downturn in U.S. imports from Asia would depress the entire Asian trade matrix in which Japan is the key participant.

Japan is heavily dependent on trade growth. Data for March 2000 indicate Japan's trade surplus expanded 23 percent year-on-year in dollar terms. In volume terms, real exports climbed by 5.9 percent compared with the final three months of 1999—an annual rate of 25 percent. Imports rose by only 0.1 percent. The difference is giving Japan's GDP a significant boost. The bilateral trade surplus with the United States is 40 percent higher than the same period a year ago and implies that Japan's trade imbalance with the United States has reached a record \$66 billion during the past twelve months. With U.S. nominal GDP growth running at almost 9 percent and real growth over 6 percent, these trade deficit numbers should not be surprising.

Japanese exports are the key support element of Japan's debt structure. Export related companies are the principal income earners and taxpayers. A meaningful reduction in Japanese exports would have multiplier effects that would ripple through the already heavily stressed economy and seriously aggravate the debt problem.

If U.S. Federal Reserve and Treasury efforts are successful in slowing the U.S. economy and increasing household savings rates, the trade deficit will decline. If it is merely reduced back to its 1999 level, the reduction could be as much as 30 percent. From a U.S. perspective such a reduction would be regarded as moderate and salutary. From an Asian perspective, the 30 percent reduction could be difficult to accommodate. Directly and indirectly, Japanese GDP growth could be depressed a full percentage point.

Implications for the United States

The PCW hypothesis has two implications for the United States and its stock market.

¹⁷Morgan Stanley Dean Witter, "Fatal Attraction: Asia's Rising Export Dependence on the U.S.," *Global Insights* (April 19, 2000).

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First, if the allies' Cold War export/consumption paradigm was optimal for winning, it was so because it raised and kept the real incomes of developing country allies higher than they would have been otherwise. That is, the strategy succeeded in keeping voter allegiances in those countries from migrating to the promises of Communism by providing and promising as much or more well-being.

For the United States the cost of this strategy has been a very large and steadily growing current account imbalance and an unavoidable adjustment of that imbalance. Putting the discussion in currency terms, the U.S. current/capital account adjustment will ultimately involve a fall in the dollar relative to other major world currencies—the euro and the yen. The dollar's decline may surprise policymakers and market participants for the same reason they were surprised by the speed and depth of the Asian downturns: they did not give adequate consideration to the contractionary power of longstanding trends when they reverse. Governments and markets were equally surprised by the speed of the Asian upturns. They did not anticipate how rapidly capital flows to countries when restructuring is clearly under way.

The U.S. current and capital account adjustment process seems to depend on two things. First is the degree to which actual restructuring deviates from baseline market expectations. Second is the extent to which foreign demand, especially emerging market demand, for U.S. good and services increases and offsets the decline in domestic U.S. demand that must accompany an increase in U.S. savings rates. We can be optimistic about the second, if the first does not prove to be destabilizing.

The strength of the U.S. economy and its vulnerability are evident in the data below.

U.S. Projected Change in Net Savings (\$ billions)¹⁸

Savings	1999	2000	2001	2002
Household	158	87	16	-56
Gross Business Savings	1205	1259	1316	1376
Government Savings	120	161	193	246
Gross National Savings	1483	1507	1525	1566
Gross Private Domestic Investment	1622	1755	1900	2057
Shortfall (Inflows from Abroad)	-139	-248	-375	-491

¹⁸Bureau of Economic Analysis and Congressional Budget Office.

A major reason so much capital flows into U.S. markets appears to be a perception that the United States is the most attractive place in the world to do business. This is America's principle strength. The United States is said to have a positive culture, as well as the legal and accounting resources needed to support business activity. It is reported that it takes about two weeks to start a limited partnership LLC business in the United States. It takes about two months in Japan, and about twenty months in Europe. In the United States there are 250 million people and 350 thousand CPAs. In Japan there are 120 million people and twelve thousand CPAs.

America's principle vulnerability, however, is its increasing dependence on inflows of foreign capital. In and of itself, dependence is not a problem. Global growth occurs on a foundation of increasing interdependence.

The question is whether the U.S. dependence is stable. The fact that capital's continued attraction to U.S. markets depends on its trading partners remaining competitively backward suggests that it is not—or, at least, that there is a significant risk that it is not. U.S. trading partners are doing everything possible to restructure and catch up. Will they do it quickly, that is, in the next year or so? Certainly not. But with the U.S. example at hand and the opportunity to avoid U.S. mistakes, they eventually can and almost certainly will.

At the same time U.S. household spending continues to outstrip income, with the difference made up by either borrowing or spending capital gains. Households are liquidating or selling more financial assets than they are buying. Spending growth has accelerated in the past two years while income growth remained stable. The rise in spending that has been fueled by capital gains in stocks and home ownership has hidden a gradually increasing interest burden. While consumers rate their present situation as very good, their interest burden as a percentage of their total spending is now at an all-time high.

To understand the U.S. current account adjustment path, it is essential to keep in mind that usually the worse a country's conditions are, the higher its *potential* marginal return on investment is. That is, the worse a country's conditions, the more attractive

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it is to investors once true restructuring reforms are initiated. When real restructuring reforms get under way, “potential” becomes “expected,” and currency markets begin to do what they are supposed to do—allocate capital to its highest expected marginal rate of return.¹⁹

Two rules flow from this:

(1) *When restructuring initiatives are not under way or are very slow, capital flows to the country with the lowest amount of needed restructuring—it generally has lower taxes, is more productive, and is growing faster.*

(2) *When restructuring efforts are actively under way, capital flows to the country whose restructuring needs are the greatest—its expected marginal rate of return is higher.*

A recent example of the first rule is the United States vis-à-vis Europe. Examples of the second are Japan vis-à-vis Europe, and emerging market countries like Brazil vis-à-vis both Europe and the United States.

Just as capital markets repriced the Asian economic and political frameworks, they will also reprice the U.S. consumption commitment. In our judgment, that repricing actually began several years ago but has been masked by the effects of the Asia-to-U.S. wealth transfer and the Europe-to-U.S. capital inflows.

For the U.S. stock market this means that stocks of companies that provide and finance consumer goods and services are at greatest risk. In general, if there is a broad PCW downward restructuring adjustment of U.S. consumption that roughly approximates the adjustments that are under way in the economies of U.S. Cold War allies, all companies and countries that depend on continued high levels of U.S. consumption are at significant risk.

Moral Hazard and the PCW Transition

Government moral hazard risk-taking almost always reflects the efforts of the government to preserve the “old” or to minimize the

¹⁹Robert H. Dugger, “U.S. Trade and Current Account Deficits and the Market Adjustment Path: America’s Consumption Orientation is What is ‘Old’ about the U.S. Economy,” statement before the U.S. Trade Deficit Review Commission, March 13, 2000.

pain of restructuring and downsizing. This was true in U.S. efforts to avoid dealing with problems in the savings and loan sector. It is true now in the Japanese government's efforts to keep noncompetitive intermediate-sized businesses open and their employees "employed" via government guaranteed loans through the banking system. If there is any point on which the wide range of "new architecture" findings and recommendations agree, it is that the Asian downturns involved significant moral hazard risk-taking and that such risk-taking should be avoided.

Were U.S. government efforts to sustain strong U.S. consumption in the latter years of the 1990s a form of moral hazard risk-taking? The question is an open one. Michael Prell, U.S. Federal Reserve Board research director, raised the issue early in 1999 soon after it was evident that the 75 basis points of rate reductions the preceding autumn had succeeded in restoring U.S. stock market buoyancy.

... So let me cite Notion Number Ten, which is that the Fed has learned how to eradicate the business cycle and how to ensure eternal bull markets in stocks and bonds. I hope that I shall not be viewed as disloyal if I express a little skepticism that my bosses really have achieved quite that degree of insight and power.

But, given that one hears something akin to that thought being expressed by people with some frequency these days, might one not ask, in all seriousness, whether a new sort of moral hazard hasn't been introduced into the macroeconomic scene. Might people—business managers, consumers, investors—be taking risks that they would not have taken were it not for an exaggerated confidence in the ability of the Fed to cushion the economy and financial markets against any and all shocks? If so, there conceivably could be a greater potential instability in the system than is readily apparent at this time. Of course, in expressing that concern, I may simply be showing the propensity people who have been around central banks for a long time have for looking for something to worry about when the times are good.²⁰

²⁰Michael J. Prell, "Economic Outlook," remarks at the Charlotte Economics Club, Charlotte, North Carolina, January 14, 1999.

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Moral hazard risk-taking is a complex subject. However, just about all that can be said about it has been said by Morris Goldstein and Barry Eichengreen, despite their significantly different policy perspectives.²¹

Eichengreen focused particularly on the historical sources of moral hazard and observed that:

Asia's crisis can only be understood in term of a conjuncture of long-standing historical forces and short-term financial policies. Ultimately, the explanation for the crisis lies in the region's history and economic development trajectory, which relied on bank-centered financial systems, the use of the banks as instruments of industrial policy, and close connections between banks and politicians, all of which were designed to sustain high rates of investment and rapid economic growth. This was not a formula that could work forever: by the second half of the 1990s it had been in place for several decades and was showing growing signs of strain. At another level, the explanation lies in financial errors committed in the mid-1990s. Growth may have been slowing, but the day of reckoning was delayed by the selective liberalization of capital accounts to facilitate short-term financial flows, aided and abetted by the low level of interest rates in the major money centers and by the migration of U.S. and European investment banks to middle-income Asia. These developments on the borrowing and lending sides enabled the newly industrializing countries to borrow their way out of their difficulties for a time. In the end, however, this only set them up for a harder fall.²²

Eichengreen concludes that his interpretation of the Asian crisis has five important implications. First, large current-account deficits are not benign. Second, how the current account is financed is critically important: dependence on foreign funding is risky. Third, financial institutions are a special source of vulnerability—the belief that the government stands ready to run to the rescue is a

²¹See, for example: Barry Eichengreen, *Toward a New International Financial Architecture: A Practical Post-Asia Agenda* (Washington, D.C.: Institute for International Economics, 1999); and *Safeguarding Prosperity in the Global Financial System: The Future International Architecture*, Report of an Independent Task Force Sponsored by the Council on Foreign Relations, Carla A. Hills and Peter G. Peterson, Co-Chairs, Morris Goldstein, Project Director (Washington, D.C.: Institute for International Economics, 1999).

²²Eichengreen, *ibid.*, p. 162.

source of moral hazard that encourages inflows of more foreign capital. Fourth, developing countries should press for greater exchange-rate flexibility. And fifth, it will not always be possible to prevent or predict financial crises.²³

These five implications were intended to illuminate developing-country conditions. However, if the PCW transition hypothesis is true, all but the fourth of Eichengreen's implications have important meaning for the United States. In the U.S. case, the large current account deficit is financed by foreign capital inflows. The fact that most of these inflows are into marketable debt and equity securities makes them potentially very short term in nature.

No one should be confused and think that U.S. debt and equity markets are not like "banks" or financial institutions more generally; i.e., that somehow "markets" have powers that mere banks do not have. As Long Term Capital Management (LTCM) demonstrated starkly, markets have implicit capital ratios, and when capital positions are reduced by losses, financial and economic contractions result. The real probability such a contraction could occur may be higher than perceived if the Federal Reserve rate cuts in fall 1999, intended to stabilize markets, introduced a significant moral hazard risk.

Eichengreen's fifth implication—that crises are hard to predict—certainly applies to the United States also. As we will see when we review a macroeconomic simulation of the effects of a significant stock market decline, prediction may be made more difficult if the historical context of the model is not carefully considered.

HOUSEHOLD BALANCE SHEETS AND GENERATIONAL DELEVERAGING

To win the Cold War, American households and government were encouraged to spend, and they did. It is not surprising, therefore, that as the Cold War decelerated in the 1980s, a shift in U.S. political philosophy from consumption and spending to savings got under-

²³Eichengreen, *ibid.*, p. 167.

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way. Throughout the 1980s, caps on household savings-deposit interest rates were removed, the tax deductibility of consumer interest expenses was eliminated, and a variety of tax-incentive savings programs were established. Balanced-budget efforts to change government spending and saving priorities saw fruition in the early 1990s. By the late 1990s, the U.S. government in current terms was adding significantly to national savings.

While these shifts have been real, they may not adequately address the financial risks both households and the public sectors face due to aging. Although precisely calculating retirement savings is nearly impossible, survey and poll data point to a large variance in perceptions between how well-prepared households are for a comfortable retirement and how well-prepared they need to be. Also, household perceptions of retirement comfort may be undermined by well-documented and widespread doubts about the U.S. Social Security system's ability to pay current benefits, especially if accumulated private savings would suddenly be perceived as inadequate.

Perceived household savings adequacy is critically important to knowing whether the U.S. stock market represents a financial risk to the economy. A decline in the stock market is important only for what economic, political, and social events it triggers. If households are well prepared for retirement, that is, if their net worth is growing and their benefits can reasonably be expected to provide sufficient assets for a secure retirement, then we can be reasonably confident that a stock market downturn will not trigger a sharp and destabilizing increase in personal savings rates. If they are not, that risk exists.

There is broad, though certainly not complete, agreement that most households, especially among the dominant preretirement Baby Boom generation, are not financially well prepared for retirement and will at some point need to reduce consumption and increase savings. An analysis by Catherine P. Montalto that mined the recently updated household financial data from the U.S. Federal Reserve's Survey of Consumer Finances concluded that only 44 percent of households with a currently employed household-er will accumulate retirement savings that will be adequate to main-

tain the pre-retirement level of living throughout their retirement years.²⁴ The authoritative 1999 Retirement Confidence Survey by the Employee Benefit Research Institute (EBRI) concluded that less than 10 percent of current workers are doing a very good job preparing for retirement, though 70 percent believe they are saving adequately.²⁵ Of the 70 percent of workers polled in the survey who believe they are saving adequately for retirement, the median amount of accumulated financial assets is only \$29,000, which EBRI called “unimpressive.”²⁶

Moreover, these data and surveys indicate current working households entertain unrealistic expectations about how long they will work; how much they will depend on Social Security benefits for retirement income; and how high their pension benefits will be.

Private Savings Adequacy

Determining accurately whether Boomer households need to increase their savings rates to assure a secure retirement is fraught with the need to make many assumptions on a variety of variables, without the benefit of comprehensive, timely household financial data. There is a lively debate over whether Baby Boomers are saving adequately. In 1997, Douglas Bernheim of Stanford University estimated that the Baby Boom generation was saving only 38 percent of what it will need to save for retirement.²⁷

At the other end of the spectrum, optimists like William Gale dispute Bernheim’s methodology and results. As noted in a June 1999 AARP study,²⁸ “Gale estimates that close to half of Boomers

²⁴Catherine P. Montalto, *Retirement Savings of American Households: Asset Levels and Adequacy*, report to the Consumer Federation of America and DirectAdvice.com, April 26, 2000.

²⁵Employee Benefit Research Institute (EBRI). *Retirement Confidence Survey and RCS Minority—1999 Results and Tools*. http://www.ebri.org/rcs/1999/1999_results.htm

²⁶EBRI, http://www.ebri.org/rcs/1999/1999_results.htm

²⁷Douglas Bernheim, Merrill Lynch Baby Boomer Retirement Index(SM), 1997.

²⁸J. W. Gale, “Are Americans Saving Enough for Retirement?” A Century Foundation Report, The Twentieth Century Fund Foundation (1998) and “Will the Baby Boom Be Ready for Retirement?” *The Brookings Review*, Summer 1997, pp. 5–9, cited in John Gist, Wu Ke Bin, and Charles Ford, “Do Baby Boomers Save and, If So, What For?” Paper no. 9906, (Washington, D.C.: AARP, June 1999), pp. 6–7. http://research.aarp.org/econ/9906_do_boomers.pdf

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are saving adequately for retirement, even if no home equity is counted. He estimates that nearly two-thirds are saving adequately if half of home equity is included, and over 70 percent are if all housing equity is counted.

The AARP study authors go on to describe succinctly the high degree of uncertainty inherent in any estimate of savings adequacy:

Arriving at a reliable assessment of saving adequacy is difficult because it depends on so many other factors: the standard or benchmark of adequacy, the inclusion of annuitized Social Security and pension wealth in measured saving, possible inheritances, age of departure from the labor force, and special needs and obligations (children, dependent parents, debts, medical needs, etc.)²⁹

Median estimates from the June 1999 AARP study show that older Boomer couples without a private pension would have to save between 8 and 22 percent of their income to retire comfortably, depending on replacement rates, longevity, and rates of return. Younger Boomer couples would have to save between 6 and 15 percent of their income.³⁰ Using their data, as shown in the table below, a plausible best-case estimate is that the savings need was a little more than the net worth of older Boomer couples. In the median worst case, the savings need was more than three times their net worth.

Baby Boom Household Balance Sheet Conditions

1994 Median Net Worth, less home equity, of:

Older Boomers	\$25,000
Younger Boomers	\$11,000
Total Boomers	\$17,807

Amount and Percentages of Wages that Must Be Saved to Reach Retirement Target

Older Boomer Couple	<i>per year</i>	<i>over 15 years</i>
Median with DB Pension*	\$2,411	\$28,932
Median without DB Pension	\$6,549	\$78,588

Table continued on page 30

²⁹Gist, Wu, and Ford, *ibid.*, p. 7

³⁰Gist, Wu, and Ford, *ibid.*, Tables 2 and 11.

*Savings Needs of Older Boomers as
Percentage of Net Worth*

With DB Pension	116%
Without DB Pension	314%

*DB = Defined-Benefit

EBRI data indicate that current workers say private savings will be the most important source of retirement income. On the other hand, current retirees list Social Security as the most important source of their retirement income. Presumably, current retirees are better informed about retirement realities than current workers are, and it is only a matter of time that workers will have to adjust their expectations.

How Will I Pay for Retirement?

Most Important Sources of Retirement Income

(Expected sources for workers and actual sources for retirees.)³¹

	Workers	Retirees
Personal savings	49%	18%
Employer-funded plans	20	30
Social Security	12	39
Employment	11	3
Sale of home or business	5	2
Other government programs	1	4
Support from children/family	<1	<1

If current workers are biased toward overestimating their retirement well-being, the risk is that a sharp stock market decline could trigger a sharp correction in their expectations. The top two numbers for workers in the table above could shift suddenly in the direction of the same numbers for retirees. A shift to an increase perceived reliance on private pensions and Social Security take place would run in to evidence of common overestimating of pension benefits and well-documented and widespread doubts about Social Security's ability to pay current benefits.

³¹EBRI, http://www.ebri.org/rcs/1999/1999_results.htm

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Private Pension Adequacy

The U.S. Commission on Pension Policy found evidence of a substantial “expectations gap” between what retirees think they are going to get and what they actually get.³² Before retirement, households seem consistently to overestimate their benefits. A large decline in consumption immediately after retirement has troubled economists for many years and now appears to be the result of benefits overestimation.³³ In a 1994 survey, 40 percent of the respondents said their retirement income was less than they expected. Less than 10 percent said pension income exceeded their preretirement expectations.³⁴

An overestimation of benefits should not be surprising. Relatively few workers actually do the calculations needed to determine retirement incomes. Even though the portion of workers who have tried to determine how much they need to save by the time they retire has increased steadily since 1996, only half of all current workers have actually tried to do this calculation (49 percent in 1999, compared with 32 percent in 1996).³⁵

Social Security

Without treading on the sensitive political question of Social Security reform, we note that, under current official projections, Social Security payroll taxes will no longer cover benefits after 2015, requiring either an increase in the public debt, tax hikes, or spending reductions to pay current benefit levels beyond 2015. Since each of these options would entail significant political opposition, experts assume and the public believes current benefits may have to be reduced beforehand.

Perhaps this fact explains why surveys continuously show most workers expect little or no income from Social Security when they

³²James Banks, Richard Blundell, and Sarah Tanner, “Is There a Retirement-Savings Puzzle?” *American Economic Review*, vol. 88, no. 4 (September 1998), p. 785.

³³Banks, et. al., pp. 769–88.

³⁴Andrew Dilnot, Richard Disney, Paul Johnson, and Edward Whitehouse, “Pensions Policy in the U.K.” (London: Institute for Fiscal Studies, 1994).

³⁵EBRI, http://www.ebri.org/rcs/1999/1999_results.htm

retire. A March 2000 poll conducted for the Montalto study found that, when asked how much retirement income workers expected to receive from Social Security, 39 percent responded “none.”³⁶ Of those who did expect to receive Social Security benefits, eight out of ten expected them to provide less than half of current Social Security benefits. An AARP poll found that only 6 percent of Boomers are very confident Social Security will still be available when they retire; 64 percent were “not too confident” or “not at all confident.” A CBS poll found that 55 percent of the public doubted that Social Security will have the money to provide the benefits they expect for retirement.³⁷ An NBC News/*Wall Street Journal* poll found only 28 percent believe Social Security will be paying current benefit levels when they retire.³⁸ This variance in perceptions will become very important if workers have reason to doubt their private savings adequacy.

Later Retirement

It is commonly assumed that the growing burden of societal aging will require workers to postpone retirement. Many people think they will be able to work until they are 65, but the facts indicate otherwise. EBRI’s survey points to another form of “retirement illusion”: overestimating when retirement will occur. Nearly half of today’s workers expect to retire at age 65 or later, and 5 percent expect they will never retire. In contrast to these expectations, however, most retirees report actual retirement ages younger than age 65. Moreover, for many retirees, the earlier retirement age was not by design; more than four out of ten (43 percent) of today’s retirees say they retired earlier than planned.³⁹ If current workers follow the pattern set by today’s retirees, many are also likely to retire earlier than planned and many will do so for negative rea-

³⁶Caravan Opinion Research, March 2000, Question R10, p. 37; <http://www.consumerfed.org/opinion.pdf>.

³⁷CBS News Poll. May 11, 1999. N=578 adults nationwide, including 408 who are currently employed.

³⁸NBC News/*Wall Street Journal* Poll conducted by the polling organizations of Peter Hart (D) and Robert Teeter (R). Latest: March 47, 1999. N=2,012 adults nationwide.

³⁹EBRI, http://www.ebri.org/rcs/1999/1999_results.htm

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sons. Forty percent of today's retirees who left the work force earlier than expected say they did so because of health problems or disability.

Conclusion

Though forming precise estimates and forecasts of savings and pension adequacy is enormously complicated, the weight of survey data points to a need for households to start saving more. Yet the gap between working households' expectations and likely reality concerning retirement remains wide, as we can see below.

Consume much less now to save for later? Boomers are already finding it hard to save for retirement. Using a scale of one to five, an AARP poll concluded that 47 percent found it hard to save given other needs, while 31 percent did not. The rest were in the middle.⁴⁰

Cut back on consumption in retirement? Only 35 percent expect they will have to scale back their lifestyle during retirement. Only 23 percent think they will have to struggle to make ends meet.

Work well into their seventies or eighties? The survey found that the median age at which Boomers say they want to retire and not work for pay is 59. But they expect to retire and not work for pay at 64 years, either for financial reasons or to get Social Security benefits.

Given this contrast in attitudes and the size of the Boomer's saving need, the likelihood is that they will be spooked into changing their saving behavior if they are presented with unpleasant new information about their current and prospective net worth. Data over the past ten years show that, on the margin, the public is growing more concerned about retirement savings adequacy. The Federal Reserve's Survey of Consumer Finances show households have increasingly cited retirement as their reason for saving. And EBRI's survey found that households that do their retirement calculations have saved a median \$66,000, compared to the median \$14,000 saved by households that have not.

⁴⁰American Association of Retired Persons, "Baby Boomers Envision Their Retirement: An AARP Segmentation Analysis," (Washington, D.C.: American Association of Retired Persons, February 1999); http://research.aarp.org/econ/boomer_seg.html.

Regardless of how the stock market performs, it is becoming increasingly clear that most households have borrowed from the future to finance current consumption, and as a consequence, their current net worth, expected earnings, and private and public pensions are not sufficient to meet their retirement income requirements. While undertaking this borrowing, households may hold overly optimistic expectations of how their retirement will be financed. They are “generationally leveraged,” and their leveraging has buoyed the global economy. But should the gap between optimistic expectations and a looming reality close, households will try to deleverage. Triggered perhaps by a stock market decline, household deleveraging could slow growth worldwide. The weaker the stock market, the stronger the deleveraging incentive will be.⁴¹

Moreover, the two phenomena—a very weak stock market and consumption cutbacks—are likely to be mutually amplifying. Our review of history suggests two potentially useful historical analogues of the scale of household perception shift that may be possible. The more recent is the response of household buying patterns to rising gasoline prices in the mid-1970s. The other is the response of household saving rates to the sudden entry of the United States into World War II, when household savings jumped from 5 to 25 percent in one year.

MACROECONOMIC FORECASTS INCLUDING A MAJOR MARKET DECLINE

Asking how the American stock market is a financial risk is roughly equivalent to asking why the benign results from large-scale macroeconomic model simulations of a large stock market downturn might not be accurate. To initiate this inquiry, we compare a carefully modeled current forecast of the U.S. economy with a simulation of the

⁴¹ The Federal Reserve will publish its exhaustive 1998 Survey of Consumer Finance and provide a new national benchmark for evaluating household financial strength. The last survey was done in 1995. Information currently available from other, more limited sources, suggests strongly that the new survey is going to document that U.S. households are more leveraged and dependent on stock market strength than ever.

The American Stock Market as a Financial Risk

economy assuming a large downturn. The forecast we use as a baseline for comparison is Macroeconomic Advisors current U.S. forecast, which incidentally includes a 12 percent stock market decline. The simulation includes a 30 percent market downturn and was prepared by Macroeconomic Advisors specifically for this paper to show how the U.S. economy would likely respond to the downturn under standard assumptions.⁴² A 30 percent decline was specified because it is roughly the amount by which many analysts said the U.S. stock market was overvalued in mid-1999.⁴³

The simulation indicates that following a sharp stock market decline, appropriate monetary policy adjustments are made, fis-

⁴²Macroeconomic Advisors, 231 South Bemiston Ave., Suite 900, Saint Louis, Missouri.

⁴³See for example: Douglas R. Cliggot, "Be Careful, The Gulf Between the S&P 500 and 'Fair Value' Is Big; We Think the Risk/Return Profile of the Market Is Poor," in *U.S. Equity Portfolio Strategy* (New York: J.P. Morgan Securities Inc., June 28, 1999). Cliggot concluded:

From 1986 through 1994 fair value increased at a strong 13.5 percent average annual rate. One part was 8.5 percent average annual EPS growth. Another 2 percent per year came from declining bond yields, and the last 3 percent per year came from a drop in the average EY/BY ratio from 0.95 to 0.71—effectively, the measured risk premium dropped by about 25 percent. During the nine-year stretch, the S&P 500 rose 9 percent per year, so it underperformed fair value by 450 bps per year.

But then things changed. From 1994 through 1998 the rate of appreciation of fair value accelerated by 450 bps, to an 18.0 percent average annual rate. EPS growth contributed 6 percent per year. The big drop in bond yields accounted for a huge 10.5 percent per year, and further decline in the average EY/BY ratio to 0.67 added 1.5 percent per year. And in these four years, the S&P 500 averaged a 28 percent gain each year, or 1,000 bps faster than fair value. ... Market values have doubled in a span of four years a couple times in the past four-and-a-half decades, but each time we reverted back below the mean (7 percent per year gain) pretty quickly.

What next? The sharp decline in fair value in 1999 has been driven by the back-up in bond yields. Everything else equal, a move from a 5 percent 30-year yield to a 6 percent yield reduces fair value on the S&P 500 by just about 200 index points. So one way to bring fair value and current market levels closer in line would be a big bond rally. Maybe ... but we doubt it. We think a bond yield in the 6.0–6.5 percent range makes sense if CPI inflation is in the 2.0–2.5 percent range. So in the near term (12–18 months) most of the lifting probably needs to be done by earnings. We expect S&P 500 EPS to rise a cumulative 28 percent over the course of 1999 and 2000. If we match that with a 6 percent bond yield, we get an S&P 500 fair value level of 1219 at year-end 2000. Hmmm ... let's hope we are wrong about bonds.

cal stabilizers in existing law work, the United States endures a period of reduced growth, and then stabilizes onto a path of continued strong, stable growth. See the Appendix for the detailed forecast and simulation results. The model specifically does not include consideration of asymmetric, nonlinear saving and spending responses by households.

The simulation results are benign mainly because the personal savings rate increases only from -1.4 percent to $+2.6$ percent in 1999 and from -2.3 percent to $+3.2$ percent in 2000.⁴⁴ The new levels are only about half the levels observed at the beginning of the 1990s. See the reported savings rate line in the graph on page 38. (The graph also shows what Macroeconomic Advisors (MA) estimates the savings rate would have been if the stock market had risen in line with nominal economic growth during the 1990s.)

MA conducted the simulation again in April 2000 and obtained similar results. Specifically, MA reported that they simulated their model for a different beginning of third quarter 2000 equity corrections after making the following adjustments:

1. Switched on the reaction function and forced the effective funds rate (RFFEFF) to the values in MA's latest base forecast (BASE003, April 3, 2000). This resets the adjustment factors on the reaction function.
2. Froze household equity net worth (NMAQ\$) for beginning of first and second quarters 2000, since these are already historical values.
3. Updated first quarter 2000 spending figures to reflect incoming data as of April 14, 2000. These boost GDP growth in first quarter 2000 to 6.1 percent

For each of three alternatives, MA assumed a large decline in household equity net worth during the second calendar quarter of 2000 (i.e., beginning of third quarter 2000). Subsequent to third quarter 2000, the adjustment factor on household equity net

⁴⁴The savings rate data, of course, are those reported before the GDP revisions of late October 1999. The revisions affect the levels of reported savings rates, but are not expected to affect the relative movement of the rates over time.

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worth was re-leveled to its new third quarter 2000 value. This produced a gradual and slight rebound in equity net worth in 2001. The results would not have been much different had MA just held household equity net worth constant following the correction. Three corrections were simulated: 12.7 percent (this corresponds to the decline in the Wilshire 5000 between March 31, 2000 and April 14, 2000), 20 percent, and 30 percent.

Results: *12.7 percent:* With the 12.7 percent correction, the funds rate stops rising at 6.75 percent, as GDP growth is about 0.2 percentage point lower in the middle of the short-term forecast. Inflation is also about 0.1 percentage point lower.

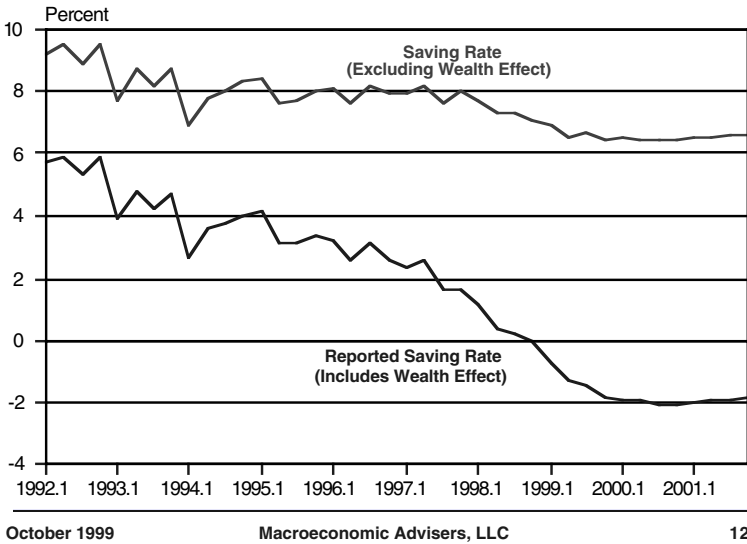
20 percent: The funds rate briefly hits 6.5 percent, but quickly declines to 6.25 percent, and perhaps even down to 6 percent. Growth is more than 0.5 percentage point lower during the middle of the short-term forecast. Inflation is about 0.2 to 0.3 percentage point lower.

30 percent: The funds rate never heads much above 6 percent, and by next year declines sharply to near 5 percent. GDP growth falls to about 1.5 percent before rebounding to above 2.5 percent. GDP-price inflation falls gradually and continuously to around 1.8 percent, or by about 0.6 percentage point below the base forecast by the end of 2001.

Caveats: These results do not take into account severe financial disruptions, either domestic or overseas, so they do not represent what the Fed's reaction might be if there was a repeat of September 1998. Because there are no disruptive foreign financial spillovers, the paths of net exports in the alternative correction simulations are certainly higher than they would be if foreign spillovers were to hurt foreign growth significantly or lead to a significant rebound in the trade-weighted value of the dollar. These considerations suggest that a large equity correction could lead to even lower interest rate paths than these simulations suggest, at least in the near term.

Confidence in the simulated savings-rate response depends significantly on plausibility of the model itself. There are four reasons to doubt the model's results.

Wealth Effect & Saving Rate



First, the model is shaped by the experience of the past thirty years in which U.S. savings were in a general decline. Any upturn in savings is dampened by the model's expectation that the trend of the preceding thirty years will continue.

Second, to take population aging into consideration, the model managers do an offline calculation that further dampens any upturn in savings. They calculate population aging and put the result in a formula that assumes a steady increase in the marginal propensity to consume as people age.

Third, the model disregards "Peter Lynch" rationality. Peter Lynch, a U.S. household investment icon, says in television advertisements that average Americans need to have about \$300,000 in financial assets by the time they are 65 years old in order to assure a secure retirement. An investor is said to be "Peter Lynch" rational if they have a "target pile of dough" (TPOD) they are trying to reach.

"Peter Lynch" rationality says that if an American investor is pushed off his TPOD path, he will increase his saving rate, and

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the older he is, the more he will do so—*exactly the opposite of what the model was designed to assume.*⁴⁵

This is critically important. If American baby boomers sharply slow their consumption in an effort to get back onto a life-cycle wealth accumulation path through saving, the economy will slow and the stock market will fall further. The additional stock market downturn will necessitate a larger savings increase, resulting potentially in a self-reinforcing GDP downturn that would be relatively immune to Fed rate cuts.

The seriousness of this threat is evident in a number of recently released reports. As noted earlier, the Consumer Federation of America analysis of the Federal Reserve's Survey of Consumer Finances shows that 56 percent of American working households are under-saved now.⁴⁶ As explained earlier, an EBRI survey concluded that current working households are not saving enough for their retirement and hold unrealistic expectations about their working life duration; dependency on Social Security for retirement income; and adequacy of private pension benefits.

The fourth deficiency in the model projections is there is no consideration of the effects outside the United States of a sharp downturn in U.S. consumption. The model managers acknowledge this limitation but fail to note that by not including risks of this sort, the model behaves as if the risks do not exist. A forthcoming MIT Press publication argues that the stability of Japan's massive public debt, for example, is dependent on the United States continuing to increase its rates of consumption.⁴⁸ It is very unlikely that that a meaningful decline in U.S. consumption could occur without triggering significant problems elsewhere in the world.

⁴⁵Macroeconomic Advisers is studying ways now to estimate the effects of different savings responses and how to model them.

⁴⁶Catherine P. Montalto. *Retirement Savings of American Households: Asset Levels and Adequacy*. Report to the Consumer Federation of America and DirectAdvice.com. April 26, 2000.

⁴⁷Employee Benefit Research Institute (EBRI). *Retirement Confidence Survey and RCS Minority – 1999 Results and Tools*. http://www.ebri.org/rcs/1999/1999_results.htm.

⁴⁸David Asher and Robert Dugger, "Could Japan's Financial Mount Fuji Blow its Top?" MIT Japan Program, Working Paper Series 00-01, May 2000.

CONCLUDING COMMENTS

For Japan and Europe, the post-Cold War transition will involve higher real marginal propensities to consume, lower savings rates, significant contractions of older trade-protected and subsidized sectors, and a general scaling-back of the welfare state pension, healthcare, and unemployment benefit promises of the 1950s and 1960s. For the United States the transition will mean higher savings and lower real consumption propensities, and some scaling back of pension and healthcare promises. The immensely positive productivity effects of the structural changes associated with the transition justify it being also called a “new paradigm.” While the transition is for the most part historical in its orientation, it fully includes the consequences of current and capital account adjustments arising from stronger growth around the world.

Generational deleveraging, however, makes the post-Cold War transition much more difficult. Japan’s electorate, for example, is aging rapidly and saving desperately in an effort to assure adequate living standards and health during the many years to come. In this circumstance, it is almost certainly impossible for Japan to generate consumption levels and growth rates high enough to resolve its breathtaking fiscal imbalances. The scale of the challenge is mirrored by the fact that to finance its pension commitments, Japan would have to increase its consumption tax from 5 percent to a politically and economically inconceivable 17 percent.

The aging of the electorates in Europe and the United States is still sufficiently far in the future that it is feasible to adjust pension and healthcare commitments enough to prevent fiscal conditions from deteriorating into a crisis, as has occurred in Japan. To do this, European and U.S. voters have to save more for their own retirements and accept rollbacks in pension and healthcare commitments that will involve a combination of longer working lives and reduced benefits.

The political obstacles are daunting. In the mid-1990s, when the Hashimoto government attempted to stabilize Japan’s fiscal situation and cut off wasteful subsidies to older, noncompetitive economic sectors, he and his government were thrown out of office,

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and the succeeding Obuchi government implemented a new round of deficit spending. More recently, in Germany, the relatively modest fiscal reforms proposed by the Schroeder government have triggered an astonishing decline in voter support. In the United States, Social Security and Medicare reforms languish on the desks of policymakers despite employment, growth, and budget surplus conditions that are so favorable as to be almost unimaginable just a few years ago.

The effects of a significant U.S. market downturn would be global and geopolitical. Several decades of U.S. current account deficits financed by capital account inflows have made foreigners significant holders of U.S. financial assets. World equity-market movements are also highly correlated: a significant U.S. decline would be associated with equity-market declines in the rest of the world.

Some of the declines would be less and some greater depending on the country's relationship to the United States. These relationships need to be carefully studied for their geopolitical implications. National and global security issues may be at stake to a greater degree than is generally realized. Countries that are significant exporters of consumer goods to the United States, such as China, are likely to be hurt most by a U.S. stock market downturn.

Macroeconomic Advisors, LLC
Forecast and Simulation Results

Macroeconomic Advisors' Forecast
Assumes a 30 percent Decline in Equity Wealth

YEAR ON YEAR % CHANGE

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Real GDP & Components											
Gross domestic product*	4.3	2.6	1.7	3.8	4.3	3.7	3.6	3.2	2.2	2.1	2.8
Composition of real GDP growth											
Final sales	4.4	2.5	1.9	3.5	3.9	3.5	3.5	3.1	2.3	2.2	2.7
Change in inventories	-0.3	0.1	-0.3	0.2	0.2	0.0	0.0	0.0	-0.1	-0.1	0.1
Personal consumption expenditures*	5.3	3.9	1.7	1.8	2.0	1.8	2.2	2.3	2.0	2.2	2.6
Fixed investment*	12.1	5.3	1.5	10.1	11.6	7.7	6.8	5.9	3.4	1.9	3.0
Inventory investment (bil chained (92)\$)	57.4	32.3	31.1	34.0	55.6	63.7	60.5	60.8	53.1	40.5	41.2

Macroeconomic Advisors, LLC
Forecast and Simulation Results

	Macroeconomic Advisors' Forecast										
	Assumes a 30 percent Decline in Equity Wealth (<i>cont.</i>)										
Net exports (bil chained (92) \$)	-238.2	-346.3	-364.7	-320.2	-264.6	-183.1	-99.0	-44.5	-15.0	3.6	23.7
Exports*	1.1	3.9	7.3	9.6	9.4	8.4	7.3	5.8	4.2	4.0	5.1
Imports*	9.7	13.0	3.8	3.8	3.6	1.5	1.9	3.0	2.8	3.0	3.7
Government consumption & gi*	1.6	1.4	1.7	1.2	1.2	1.6	1.8	1.8	1.8	1.9	2.0
(* Percentage change at annual rate)											

Baseline - No Decline in Equity Wealth
Major Economic Indicators

	YEAR ON YEAR % CHANGE										
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	<u>Real GDP & Components</u>										
Gross domestic product*	4.3	3.4	2.8	1.8	2.1	3.0	4.3	3.8	2.5	2.0	2.5
Composition of real GDP growth											
Final sales	4.4	3.2	2.7	1.9	2.1	2.9	3.9	3.6	2.6	2.1	2.4
Change in inventories	-0.3	0.0	0.0	-0.1	0.0	0.1	0.2	0.1	-0.2	-0.2	0.0
Personal consumption expenditures*	5.3	5.1	3.3	1.6	1.4	1.7	2.5	2.2	1.5	1.5	1.8
Fixed investment*	12.1	7.0	3.6	2.7	3.6	4.7	8.2	7.8	4.5	2.7	3.6
Inventory investment (bil chained (92) \$)	57.4	31.2	46.8	38.8	30.0	34.3	50.3	67.2	60.7	43.9	38.3
Net exports (bil chained (92) \$)	-238.2	-350.8	-421.0	-412.4	-378.9	-313.4	-237.2	-159.9	-82.8	-20.9	22.9
Exports*	1.1	4.0	6.5	7.2	7.0	7.7	8.7	8.0	5.9	4.7	4.8
Imports*	9.7	14.4	7.1	3.6	2.5	1.5	2.6	2.4	1.3	1.5	2.5
Government consumption & gi*	1.6	1.4	1.6	0.9	1.1	1.7	1.8	1.6	1.6	1.7	1.9

The American Stock Market as a Financial Risk

Real Activity

Private housing starts (thous. Units)	1643	1382	1238	1345	1484	1644	1701	1619	1548	1548
Light vehicle sales (mil. units)	15.6	16.0	15.1	14.6	14.9	16.0	16.8	16.6	16.1	16.3
Light truck sales	7.3	7.6	7.2	6.9	7.1	7.6	7.9	7.9	7.6	7.7
Auto sales	8.2	8.4	8.0	7.7	7.8	8.4	8.8	8.7	8.5	8.6
Industrial production*	1.9	3.2	1.5	-0.2	2.1	4.2	2.8	0.4	-0.4	0.4
Capacity utilization (mfg, %)	80.8	80.1	78.6	76.7	76.0	77.7	80.4	81.3	80.4	79.6
Nonfarm payroll employment (mil.)	125.8	130.5	131.7	132.1	132.7	134.6	137.4	139.3	140.0	140.6
Unemployment rate (civilian, %)	4.5	4.2	4.3	4.9	6.4	6.1	5.1	4.8	5.2	5.6

Prices, Productivity, & Costs

GDP price index*	0.9	1.5	2.2	2.4	1.8	1.4	2.2	2.5	2.2	1.9
CPI (all urban)*	1.5	2.6	2.8	3.0	2.7	2.6	3.2	3.4	3.0	2.6
PPI (finished goods)*	-0.4	2.8	1.2	1.7	1.0	0.5	1.5	1.8	1.6	1.2
Compensation per hour*	4.1	4.6	4.5	4.5	4.1	3.7	4.1	4.3	4.2	3.9
Output per hour*	2.6	2.0	2.0	2.1	2.5	2.7	2.0	1.8	2.1	2.3
Unit labor cost*	1.5	2.5	2.5	2.4	1.5	0.9	2.1	2.5	2.1	1.6
Exchange rate (G-10 index)	98.8	99.8	95.7	95.0	93.2	83.1	81.6	82.1	82.5	81.9
Price of imported oil (\$/barrel)	12.1	17.0	21.6	20.2	20.7	21.1	21.9	22.4	22.8	23.3

(cont.)

	<u>Selected Interest Rates</u>										
Federal funds rate	5-35	4-99	6-20	6-73	6-16	4-95	4-31	4-91	5-68	5-79	5-33
30-year Treasury bond yield	5-58	5-83	6-30	6-82	6-72	6-42	6-07	6-03	6-13	6-18	6-17
Aaa corporate bond yield	6-53	7-00	7-56	8-12	7-99	7-61	7-21	7-20	7-34	7-41	7-37
		<u>Incomes & Related Measures</u>									
Corporate profits w/iva & cccadj*	0.1	5-1	-3.0	-3.7	0.8	7-5	12-3	7-8	3-1	3-9	7-2
Real personal disposable income*	3-5	3-0	2-9	1-9	1-6	1-9	2-9	2-8	2-1	2-0	2-2
Personal saving rate (%)	0-5	-1-4	-2-3	-2-2	-1-9	-1-7	-1-4	-0-9	-0-3	0-2	0-5
HH net worth, equities (4-qtr % ch.)	0-4	35-3	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0

The American Stock Market as a Financial Risk

Baseline - No Decline in Equity Wealth
Personal Income & Its Disposition

ANNUAL LEVELS

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Personal income	7126.1	7491.6	7907.0	8308.6	8663.1	9024.5	9487.2	10010.6	10559.1	11067.3	11567.3
Wage & salary disbursements	4149.9	4418.4	4674.1	4897.4	5087.5	5287.5	5549.4	5881.5	6202.9	6477.6	6753.0
Other labor income	407.0	422.3	451.5	483.7	513.7	545.5	584.7	632.7	680.9	725.4	761.8
Proprietors' income with Iva & ccadj	577.2	608.7	641.1	667.6	695.1	735.0	789.5	841.2	880.2	914.7	957.2
Farm	28.8	18.1	17.4	18.3	18.9	20.2	22.3	24.5	25.9	26.9	28.1
Nonfarm	548.5	590.5	623.7	649.3	676.2	714.8	767.2	816.7	854.2	887.8	929.1
Rental income of persons with Iva & ccadj	162.6	170.4	177.9	185.9	194.3	203.1	212.2	221.7	231.7	242.1	253.0
Personal dividend income	263.1	274.6	291.6	299.9	298.6	305.2	328.7	359.0	379.4	392.6	411.3
Personal interest income	764.8	782.3	824.4	878.7	919.3	931.1	927.8	942.4	976.1	1011.1	1034.7
Transfers payments to persons	1149.0	1186.1	1239.3	1307.0	1382.4	1462.5	1543.6	1629.5	1732.0	1850.6	1964.3
Federal transfers to persons	803.4	826.3	859.6	903.6	933.8	1007.1	1059.6	1113.9	1181.3	1262.1	1335.1
Social Security benefits	369.6	379.5	391.5	404.7	419.9	435.0	450.9	466.9	487.1	511.7	522.9
Medicare	217.0	223.9	237.5	256.3	276.9	300.1	325.2	355.0	389.9	429.0	472.6
Unemployment insurance	19.5	19.4	20.5	24.0	29.5	33.6	33.1	29.1	28.3	31.6	35.3
Other	197.4	203.5	210.2	218.6	227.5	238.5	250.4	262.9	276.1	289.9	304.3

(cont.)

State & local transfers to persons	317.4	330.3	348.9	371.2	394.9	420.2	447.3	477.2	510.6	546.6	585.4
Medicaid	174.1	181.1	192.8	207.2	222.8	239.5	257.5	277.9	301.3	326.9	354.7
Other	143.3	149.2	156.1	163.9	172.1	180.8	189.8	199.3	209.2	219.7	230.7
Business transfers to persons	28.2	29.4	30.8	32.2	33.6	35.1	36.7	38.4	40.1	41.9	43.8
Less: Personal contributions for social insurance	347.4	371.2	392.9	411.6	427.7	445.3	468.7	497.4	524.1	546.8	568.1
Less: Personal tax & nontax payments	1098.3	1171.0	1241.9	1302.6	1353.3	1406.4	1476.5	1565.2	1650.6	1724.0	1798.4
Equals: Personal disposable income	6027.9	6320.5	6665.2	7006.1	7309.8	7618.1	7990.7	8445.4	8908.5	9343.3	9768.9
Less: Personal Outlays	6000.3	6407.3	6815.5	7157.0	7447.2	7748.0	8101.9	8522.4	8936.4	9325.6	9719.1
Personal consumption expend.	5807.9	6201.5	6598.3	6930.1	7210.0	7500.2	7842.9	8251.7	8653.6	9030.1	9410.2
Interest paid by persons	172.4	184.7	195.0	203.8	213.0	222.6	232.6	243.0	254.0	265.4	277.4
Personal transfer paymtns. to ROW	19.9	21.1	22.1	23.1	24.2	25.3	26.4	27.6	28.8	30.1	31.5
Equals: Personal saving	27.6	-86.8	-150.4	-151.0	-137.4	-129.9	-111.2	-77.0	-27.9	17.7	49.8

Addenda:																			
Real disposable personal income	5348.5	5526.4	5690.4	5815.7	5916.4	6016.9	6172.0	6350.5	6499.8	6626.6	6763.5								
Personal saving rate (%)	0.5	-1.4	-2.3	-2.2	-1.9	-1.7	-1.4	-0.9	-0.3	0.2	0.5								
Household Net Worth—Total	35.1	38.9	40.2	40.9	41.5	42.0	42.5	43.1	44.0	44.9	45.8								
Household Net worth—Equities	12316	14936	15602	15602	15602	15602	15602	15602	15602	15602	15602								

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Difference: Baseline v. 30% Decline
Major Economic Indicators

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<u>Real GDP & Components</u>											
Gross domestic product*	0.0	-0.8	-1.1	2.0	2.2	0.7	-0.7	-0.6	-0.3	0.1	0.3
Composition of real GDP growth											
Final sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in inventories	0.0	-0.8	-0.8	1.5	1.8	0.7	-0.4	-0.5	-0.3	0.0	0.3
Personal consumption expenditures*	0.0	0.1	-0.3	0.4	0.3	-0.1	-0.3	-0.1	0.0	0.1	0.1
Fixed investment*	0.0	-1.1	-1.6	0.2	0.6	0.1	-0.3	0.1	0.4	0.7	0.8
Inventory investment	0.0	-1.7	-2.1	7.5	8.1	2.9	-1.5	-1.9	-1.2	-0.8	-0.7
(bil chained (92) \$)	0.0	1.2	-15.7	-4.8	25.5	29.4	10.1	-6.4	-7.6	-3.4	2.9
Net exports											
(bil chained (92) \$)	0.0	4.5	56.3	92.3	114.3	130.4	138.1	115.4	67.8	24.5	0.8
Exports*	0.0	0.0	0.8	2.4	2.5	0.7	-1.3	-2.2	-1.7	-0.7	0.3
Imports*	0.0	-1.5	-3.3	0.2	1.0	0.0	-0.7	0.6	1.4	1.5	1.2
Government consumption & gi*	0.0	0.0	0.1	0.3	0.1	-0.1	0.0	0.2	0.2	0.2	0.1

	<u>Selected Interest Rates</u>										
Federal funds rate	0.0	-0.2	-1.9	-3.1	-2.7	-1.2	-0.2	-0.1	-0.4	-0.9	-1.2
30-year Treasury bond yield	0.0	0.0	-0.7	-1.5	-1.6	-1.4	-1.1	-0.7	-0.5	-0.5	-0.6
Aaa corporate bond yield	0.0	0.0	-0.9	-1.7	-1.9	-1.6	-1.1	-0.8	-0.5	-0.5	-0.7
<u>Incomes & Related Measures</u>											
Corporate profits w/iva & cccadj*	0.0	-3.9	0.7	13.0	7.7	-2.3	-6.7	-5.3	-4.1	-2.1	0.0
Real personal disposable income*	0.0	-0.3	-1.3	0.8	1.2	0.4	-0.2	0.1	0.3	0.4	0.4
Personal saving rate (%)	0.0	0.2	0.9	1.2	1.9	2.3	2.5	2.6	2.5	2.3	2.0
HH net worth, equities (4-qtr-% ch.)	0.0	-40.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Differences: Baseline v. 30% Decline
Personal Income & Its Disposition

ANNUAL LEVELS

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Personal income	0.0	-6.6	-114.4	-179.6	-125.3	-45.8	-32.9	-72.8	-110.1	-134.8	-138.1
Wage & salary disbursements	0.0	-4.6	-83.4	-127.3	-71.9	-5.4	0.6	-32.8	-61.4	-79.8	-81.7
Other labor income	0.0	-0.4	-8.1	-12.6	-7.2	-0.5	0.1	-3.5	-6.7	-8.9	-9.2
Proprietors' income with	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iva & ccadj	0.0	-0.4	4.1	24.3	42.9	44.4	26.8	6.3	-2.4	0.8	9.4
Farm	0.0	0.0	0.3	1.4	2.7	3.1	2.4	1.3	0.6	0.6	1.1
Nonfarm	0.0	-0.4	3.8	22.9	40.2	41.3	24.5	5.0	-3.0	0.2	8.3
Rental income of persons with	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Iva & ccadj	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Personal dividend income	0.0	-0.5	-9.7	1.8	28.9	43.1	38.6	27.1	15.4	6.0	1.9
Personal interest income	0.0	-1.4	-27.8	-76.3	-111.1	-107.8	-81.3	-58.2	-43.4	-37.2	-39.2
Transfers payments to persons	0.0	0.3	4.3	2.3	-9.1	-16.4	-15.3	-13.4	-16.2	-21.3	-24.4
Federal transfers to persons	0.0	0.3	4.3	2.3	-9.1	-16.4	-15.3	-13.4	-16.2	-21.3	-24.4
Social Security benefits	0.0	0.0	0.0	-0.7	-4.2	-6.4	-5.8	-5.2	-7.4	-10.7	-10.9
Medicare	0.0	0.0	-0.4	-2.4	-4.0	-4.1	-3.9	-5.4	-8.2	-11.4	-14.4
Unemployment insurance	0.0	0.3	4.6	5.3	-0.8	-5.9	-5.6	-2.8	-0.6	0.8	0.9
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(cont.)

Addenda:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Real disposable personal income	0.0	-4.7	-69.4	-70.6	-3.7	43.3	43.5	43.9	63.0	90.5	121.4	0.0	0.0
Personal saving rate (%)	0.0	0.2	0.9	1.2	1.9	2.3	2.5	2.6	2.5	2.3	2.0	0.0	0.0
Household Net Worth—Total	0.0	-1.2	-4.7	-5.0	-5.1	-5.0	-4.7	-4.6	-4.5	-4.4	-4.3	0.0	0.0
Household Net worth—Equities	0.0	-1170.2	-4680.7	-4680.7	-4680.7	-4680.7	-4680.7	-4680.7	-4680.7	-4680.7	-4680.7	0.0	0.0

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