

The American Stock Market as a Financial Risk

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Introduction

Developed nation policymakers will not likely have to deal with a US stock market decline that precipitates a global downturn. Most likely, guided by active, informed markets and sound government policies, the major economies will rebalance growth as needed and reprice assets gradually, making fears of an American stock market crash moot. There are, nevertheless, sound reasons for concern. The information available to markets may not be sufficient to enable them to operate efficiently, and elected leaders may be unable to implement needed reforms. It is appropriate that the Development, Trade and International Finance Working Group weigh the risks in advance.

The financial risk posed by the American stock market to the United States and the rest of the world, 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 price declines occur much more rapidly than prices rose - gray-haired market participants like to observe in such cases, "Prices fall three times faster than they rise." The price movements are non-linear in that as they occur they seem to take on a life of their own, triggering within-market "herding"² and cross-market "contagion"³ that are mutually amplifying.

From our perspective, assessing whether the US stock market poses a financial risk requires identifying significant potential divergences between financial asset prices and real sector conditions and noting why financial markets may be underpricing the divergence.

We first look at a carefully modeled macroeconomic forecast of the US economy assuming a 30 percent stock market decline and note its rather benign longer-term effects under standard economic response assumptions. We then hypothesize two real sector trends that may not be fully reflected in the forecast or current US financial market conditions. We outline how there may be a real/financial sector divergence, and because of the scale of the divergence, the asset price adjustment could take on significant proportions.

Stock Market Divergence Underpricing

There are many ways to talk about risk, uncertainty, and the US stock market. Federal Reserve Chairman Alan Greenspan's articulations of them are as good as any and, given his responsibilities, have the advantage of including as much or more information than others. He has identified three aspects of asset pricing risk: declining equity risk premiums, adverse event probability distributions, and balance sheet instabilities. Regarding equity risk premiums, he observed --

... the decline in recent years in the equity premium--the margin by which the implied rate of discount on common stock exceeds the riskless rate of interest--should prompt careful consideration of the robustness of our portfolio risk-management models in the event this judgment proves wrong.

The key question is whether the recent decline in equity premiums is permanent or temporary. If the decline is permanent, portfolio risk managers need not spend much time revisiting a history that is unlikely to repeat itself. But if it proves temporary, portfolio risk managers could find that they are underestimating the credit risk of individual loans based on the market value of assets and overestimating the benefits of portfolio diversification.⁴

Regarding event distributions --

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 factors 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

From the standpoint of crisis anticipation, standard macroeconomic forecasting and risk management methods share three weaknesses. First, as Greenspan noted, there is relatively little experience with information and liquidity-driven herding and contagion crises embedded in them. 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, there is a risk that crisis probabilities in the tails of outcome distributions are much higher than estimated. And third, they are not well suited to assessing macroeconomic trends when large economic restructuring changes are underway. 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.

Macroeconomic and risk management model effectiveness is critical. A record low proportion of US 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 US stock market as exposed to two sources of real sector risk: (1) Diminishing returns to Asian and European import-substitution and export-led-growth strategies and the mechanics of US current and capital account flows. (2) The aging of industrialized economy populations and the significant undersaving of households and underfunded 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 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 US and its allies throughout the Cold War decades and are reflected in US 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. Because of declines in industrialized country birth and growth rates without comparable reductions in pension and healthcare benefits, all the major industrialized countries face generational accounting imbalances. This is a very 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".

Organizationally, we will first present the two hypotheses, the "post-Cold War transition" and "generational deleveraging", and use the perspectives they highlight to examine internal and external risks involving the US stock market. Because the terrain we will cover is very broad, we will err on the side of brevity, and trust a reader will understand that this is a document written to initiate discussion about a wide range of ideas.

Macroeconomic Forecasts Including a Major Market Decline

The forecast we use to serve as a baseline expectation is a simulation. It was prepared by Macroeconomic Advisors specifically for this paper to show how the US economy would likely respond to a 30 percent stock market decline under standard assumptions.⁷ It indicates that following a sharp stock market decline, appropriate monetary policy adjustments are made, fiscal stabilizers in existing law work, the US endures a period of reduced growth, and then stabilizes onto a path of continued strong, stable growth. The model specifically does not include consideration of asymmetric, non-linear panic responses.

A 30 percent decline was specified because it is roughly the amount by which many analysts say the US stock market was overvalued in mid-1999, as is discussed later in this paper.

Baseline - No Decline in Equity Wealth

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Real GDP and Components											
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
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 and gi*	1.6	1.4	1.6	0.9	1.1	1.7	1.8	1.6	1.6	1.7	1.9
Real Activity											
Private housing starts (thous. units)	1623	1643	1382	1238	1345	1484	1644	1701	1619	1548	1548
Light vehicle sales (mil units)	15.6	16.7	16.0	15.1	14.6	14.9	16.0	16.8	16.6	16.1	16.3
Light truck sales	7.3	8.0	7.6	7.2	6.9	7.1	7.6	7.9	7.9	7.6	7.7
Auto sales	8.2	8.7	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	0.1	2.1	4.2	2.8	0.4	-0.4	0.4
Capacity utilization (mfg, %)	80.8	79.8	80.1	78.6	76.7	76.0	77.7	80.4	81.3	80.4	79.6

Nonfarm payroll employment (mil.)	125.8	128.6	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	5.8	6.4	6.1	5.1	4.8	5.2	5.6
Prices, Productivity and Costs											
GDP price index*	0.9	1.5	2.2	2.4	1.8	1.4	1.5	2.2	2.5	2.2	1.9
CPI (all urban)*	1.5	2.6	2.8	3.0	2.7	2.6	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	0.7	1.5	1.8	1.6	1.2
Compensation per hour*	4.1	4.6	4.5	4.5	4.1	3.6	3.7	4.1	4.3	4.2	3.9
Output per hour*	2.6	2.0	2.0	2.1	2.5	2.8	2.7	2.0	1.8	2.1	2.3
Unit labor cost*	1.5	2.5	2.5	2.4	1.5	0.8	0.9	2.1	2.5	2.1	1.6
Exchange rate (G-10 index)	98.8	9.8	95.7	95.0	93.2	87.6	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	21.5	21.9	22.4	22.8	23.3
Selected Interest Rates											
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

Incomes and Related Measures

Corporate profits w/iva and ccadj*	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
Federal deficit (unified, FY, bil. \$)	69.2	120.2	189.0	208.4	217.0	216.3	258.7	331.4	412.1	423.8	433.0

Major Economic Indicators

YEAR OVER YEAR % CHANGE

* Percent change at annual rate

Baseline - No Decline in Equity Wealth

Personal Income & Its Disposition

ANNUAL LEVELS

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Personal income	7126.1	7491.6	7907.0	8308.6	8663.1	9024.5	9467.2	10010.6	10559.1	11067.3	11567.3
Wage and salary disbursements	4149.9	4418.04	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 and 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 and 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	953.8	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
State and 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
Medicare	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 security	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 and 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 payments 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 New Worth - Equities	1231.6	1493.1	1560.2	1560.2	1560.2	1560.2	1560.2	1560.2	1560.2	1560.2	1560.2

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Trade, Development, and the Post-Cold War Transition

Many stock market skeptics point to US current and capital account flows and conclude that current US stock market valuations are not sustainable. The restructuring recoveries underway in Europe and in all the Asian countries (and maybe Japan) are said to mean that the amounts of capital inflows the US has enjoyed in past years can be maintained only if US interest rates go up. Higher rates will cause the broad stock market to fall.

The rebuttal to this argument generally consists of the observation that if US growth is depressed by economic growth in the rest of the world, more capital may be allocated within the US stock market to sectors that serve this growth and less to US consumption. But this is hardly a reason to be concerned about a general equity market collapse.

This rebuttal may not be correct if US current and capital account imbalances are part of a larger historic process that is significantly adverse to US consumption and is not reflected in standard macroeconomic forecasts or current financial asset prices. This could be the case if the Asian crises of the 1990s and the US current and capital account imbalances are linked and represent different aspects of a longer-term historical process. In such a circumstance, it may not be possible for Asian restructuring downturns to occur without a US restructuring downturn occurring also.

In this section we lay out an interpretation of the economic events of this decade in which current US conditions are 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 the risks within the process.

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 WWII-scarred Japan and Germany and other western-ally countries surrounding the former-USSR and China. This is particularly clear in Asia from the 1950s into the early 1990s. Japan first, followed by the Asian Tigers and the NICs in the "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. The US through grants, development loans, and defense arrangements met the early capital needs of its Cold War allies in the 1950s. At the same time, the de-emphasis of saving and encouragement of consumption, even to the point of providing tax deductions for consumer credit interest expenses, supported the evolving export-led growth strategies of US allies. The high-production, high-savings strategies of the recovering and developing countries were matched by a US high-consumption, low-savings strategy.

There is also general agreement that this system of export-to-the-US and US-buy-from-its-allies started to break down in the 1990s. In his excellent paper for the working group, Robert Blecker thoroughly describes the diminishing returns to export-led growth and pinpoints the zeroing out of the strategy as occurring some time in the mid-1990s.⁸ Blecker rightly, in our judgment, criticizes as incomplete, the explanations of the US and other G7 governments that the Asian downturns of the mid-1990s were the result of "crony capitalism" and inadequate financial supervision and a lack of transparency. The downturns were, of course, in part 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.

Blecker suggests the missing item is a "fallacy of composition" effect of so many countries attempting the same strategy. Marginal returns fall to zero, even become negative, and financing structures collapse. 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 US consumption strategy.

We are not surprised to look back and see the United States pursue 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. In contrast to the high-production, high-savings strategy the US pursued to win World War II, a strategy in which the US essentially out-

produced its enemies, the US's Cold War high-consumption, low-savings strategy won because it essentially out-consumed the USSR and China. The US was able to support its allies in a recovery, development, and growth process that exhausted the USSR 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 US 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 post-war environment. It appears that 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".

The central idea here is the distinction between "old" and "new" economies. There is no real disagreement that the problems in the east-Asian economies seem to be most serious in the heavy industry, small manufacturing, construction, and retailing sectors. These were the sectors that, during the Cold War decades, were the foundations of import-substitution and export-led growth strategies, and they comprised two thirds or more of GDP. They were heavily subsidized, trade protected, and regulated. They are what we meant when a decade ago we referred to "Japan Inc". These sectors are what we mean now 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 public institutions that financed them and the political systems that organized them.

Importantly, government moral hazard risk-taking almost always reflects the efforts of the government to preserve the "old" or minimize the pain of restructuring downsizing. This was true in US efforts to avoid dealing with the S&L problems, and it is true in the Japanese government's efforts to soften the blows on its banking system.

There is also no disagreement that "new" sectors such as communications, information technology, professional services of all kinds, bio-medical research, and high-end design and manufacturing are growing strongly in all the Asian countries. Because these sectors

represent only about a third of GDP, however, their rapid growth is not enough to offset the negative GDP effect of the "old" sectors.

Is there an "old" versus "new" issue in the US economy? On this point there would be very heated disagreement. Most economists and analysts believe the US economy is very "new" in every respect. The prevailing view is 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 US stock market is that this view is not entirely correct. The risk to the US stock market is that what is "old" about the US economy is its consumption orientation. Estimates vary but there is general agreement that almost 70 percent of GDP consists of household consumption. If the PCW hypothesis is correct, we need to think in terms of unsustainable US consumption being the mirror of the Asian import-substitution and export-led growth strategies.

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. Japan, guarding the eastern front of Communist Eurasia, and German and Italy, guarding the western front, should have important similarities.

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 US Cold War allies was the assurance to workers that their retirement needs would be well-provided for. The result is an imbalance between the tax burdens on younger and older generations to pay for the benefits. The PCW hypothesis suggests that the Japanese, German, and Italian imbalances should be larger than those of other industrialized countries further from the Iron Curtain. Laurence Kotlikoff and Willi Leibfritz provide the following estimates of these imbalances.⁹

Generational Imbalance in Real Terms Relative to US GDP (Per Capita, 1995 US dollars)

From the European Central Bank we get affirming data from another perspective.¹⁰ In very rough terms, "old" sectors of advanced countries are primarily industrial and government-related and 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 percent of GDP

Government as a percent of GDP

Bank deposits as a percent of GDP

Service sectors are also generally thought of as "new" economically, job-creating and dynamic. On this measure too, the Euro 11 lies between the US and Japan.

Size of service sector in economy as a percent of GDP

Implications for Asia and Europe

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 Asian Tiger collapses, the Japanese recession, and slow European growth, 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 experienced large growth declines and huge losses. By implication, key import-substitution and export-led growth sectors in Germany and Italy and the banks that financed them may face contraction and increasing difficulties.

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

US	26%
Euro 11	31%
Japan	39%
US	36%
Euro 11	47%
Japan	33%
US	55%
Euro 11	84%
Japan	99%
US	72%
Euro 11	67%
Japan	59%

Implications for the United States

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

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 the developing country allies higher than they would have been in the absence of the strategy. 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 wellbeing. For the United States the cost of this strategy was real income growth that was lower than would have occurred otherwise and is evident in the undersaved condition of American households. It is also evident in the partial recovery in US real wealth since the Asian downturns and currency depreciations. This wealth transfer is a significant aspect of the remarkable current strength of the US economy, and has parallels, though in reverse, to what happened to the United States during the mid-1970s oil price increases.

The second implication of the PCW hypothesis is that just as capital markets repriced the Asian economic and political frameworks, they will also reprice the US consumption

commitment. In our judgment, that repricing actually began several years ago but has been masked by the effects of the Asia-to-US wealth transfer and key productivity increases in the US.

For the US stock market this means consumer goods and services stocks are at greatest risk. In general, if there is a broad PCW downward restructuring adjustment of US consumption, that roughly approximates the adjustments that are underway in the economies of US Cold War allies, the share prices of all companies in the world that are dependent on continued high levels of US consumption are overvalued.

The following chart of the Morgan Stanley index of consumer stocks indicates that these stocks are already under pressure.

A frequent reason why markets move steadily in one direction is because rational, contrarian concerns are assuaged by a steady flow of information indicating that the concerns are being addressed. When information content changes, markets become vulnerable. In this section we offer the hypothesis that the US stock market is vulnerable to a change in the information about Baby Boom generation retirement security.

There is broad, though certainly not complete, agreement that Boomer households are not financially well prepared for retirement and will at some point need to reduce consumption and increase savings. They 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. They are "generationally leveraged". Their leveraging has buoyed the global economy, and a deleveraging could slow growth worldwide.

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 US households are more leveraged and dependent on stock market strength than ever.

The major US stock market indices have fallen from their mid-1999 peaks and may end the year flat or slightly down. Anecdotal evidence indicates that most individual investors and mutual funds have not done as well as the major indices and are already down on the year. If this circumstance continues into next year, it will draw increasing attention to how undersaved most households, most of which have no equity holdings, are. Increased awareness of financial vulnerability in retirement is likely to impel households to save more out of income and consume less.

The weaker the stock market, the stronger the deleveraging incentive will be. Moreover, the two phenomena, a weak stock market and consumption cutbacks, are 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 US in to World War II, when household savings jumped from 5 to 25 percent in one year.

Estimates of Savings Needs

Estimating accurately how much Boomer households need to increase their saving rates to assure a secure retirement will have to wait until the results of the 1998 Federal Reserve survey are published. There is a lively debate, using mainly data from 1994, over whether Baby Boomers are saving adequately for their retirement. In 1997, Dr. 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.¹¹ At the other end of the spectrum, optimists like William Gale dispute Bernheim's methodology and argue that by including Social Security and pension income, it is possible for an individual or a couple to have achieved over 90 percent of its pre-retirement income level, yet achieve only one-third of Bernheim's adequacy index. Gale estimated, using Bernheim's model, that close to half of the boomers are saving adequately for retirement, even if no home equity is counted. If half of home equity is counted, over 70 percent are adequately saving for retirement.¹² 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.

The AARP study estimated needed savings out of earnings for Baby Boomer couples born in 1950 based on a variety of assumptions about longevity, availability of a pension, and rate of return on savings.¹³ 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 over 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	per year	over 15 years
Median with DB Pension*	\$2,411	\$28,932
Median without DB Pension	\$6,549	\$78,588

Savings Need of Older Boomers as Percentage of Net Worth

With DB Pension	116%
Without DB Pension	314%

*DB = Defined Benefit

Whatever the precise amount, it is clear that typical Boomer households will not be able to get onto a trajectory to assure a secure retirement without reducing current consumption, even if currently promised Social Security benefits are fully paid.

Will Boomers Be Spooked?

Assuming something triggers a heightened awareness among households of their precarious financial position, should we expect the public to be surprised and to react strongly? On the one hand, poll data show the public, including Baby Boomers, are already fairly realistic about the adequacy of their savings and the sustainability of current Social Security benefits.

An AARP poll of Boomers found only 17 percent are completely satisfied with the amount of money they are able to put aside for retirement.¹⁴ 50 percent are "somewhat" satisfied and the rest (31 percent) are "not very" or "not at all" satisfied.

Regarding Social Security, the 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.¹⁵ While 71 percent said in an NBC poll that they expected to receive half or less of their retirement, a sizeable 25 percent said they would receive all or most of their retirement income from Social Security.¹⁶ Only 28 percent believe Social Security will be paying current benefit levels when they retire.

However, these sanguine public attitudes contrast with polling data that probe how Boomers say they envision retirement. Setting aside the fact that their Social Security benefits have not been funded, here are the choices these households would face if they confronted their predicament today, compared to polling data on how Boomers expect to live in retirement.

Baby Boomer Retirement Financing Options¹⁷

compared with how they envision their retirement.¹⁸

- | | |
|---|---|
| 1. Consume less: cut spending by \$1,589 per month and save it and decrease retirement spending by \$1,416 per month. | Boomers are already finding it hard to save for retirement. An AARP poll, using a scale of 1 to 5, found 47 percent found it hard to save given other needs while 31 percent did not. The rest were in the middle. 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. |
| 2. Work Longer: Work for an additional 24 years before retiring. | The median age Boomers say they want to retire and not work for pay is 59. But they expect to retire and not work |

for pay at all at 64 years for financial reasons or to get Social Security benefits.

Given this contrast of attitudes and the size of the Boomer's saving need, the likelihood is that they will be spooked into dramatically changing their saving behavior if they are presented with harsh new information about their current and prospective net worth.

Global Effects of Generational Deleveraging

If insufficient private savings and unfunded pay-go public pensions are not corrected before demographic aging sets in, the casualties will likely include per capita living standards, fiscal balances, and equity market values. A 1998 G-10 report said that aging will have the following adverse macroeconomic consequences:¹⁹

1. As the ratio of consumers to producers rises, per capita living standards will fall unless relative workforce declines are offset by increases in labor productivity and the effective supply and utilization of labor.
2. Baby Boom dissaving in retirement would decrease the pool of capital available to finance continued high labor productivity growth.
3. Fiscal balances will precipitously deteriorate as revenues paid by the large, high-earning Baby Boom generation decline as they enter retirement. Budget deficits will rise, depleting national savings and putting upward pressure on interest rates and downward pressure on growth.
4. Rapidly aging countries like Japan and Italy are also running large current account surpluses, but a decline in savings rates as these countries age further could reduce the amount of global savings. For the US, this means the pool of capital that has financed US investment and consumption is going to shrink, with negative implications for bond prices and the dollar.

D. Financial Risk and the US Stock Market

The American stock market represents 47 percent of the world's equity market wealth. Whether it is overvalued or not, is crucially important.

We have argued above that US equity values are exposed to the restructuring adjustments associated with the post-Cold War transition and to consumption cutbacks associated with generational deleveraging. If the broad market is overvalued, it is certainly so to the extent it is not pricing in a longer-term decline in US consumption propensities. The central risk the US stock market poses is that its five-year uptrend could be reversed, that a significant portion of that uptrend could be eliminated in about a third of the time it took to achieve it, and that the asymmetry of this reversal could trigger non-linear herding and contagion effects in household sector-related markets.

In this section we, discuss the mechanics of market contractions using 1998 as an example, and briefly review various approaches to equity market valuation for the benefit of working group members who may be unfamiliar with commonly used terms and findings.

Global Equity Markets

World equity markets total about \$29.5 trillion, of which the US market accounts for \$13.8 trillion. In the past five years total world equity market value increased from \$12.9 trillion to \$29.7 trillion, or \$16.8 trillion. Of this amount, the increase in the US stock market accounted for \$10 trillion, or 59 percent.

As we noted at the outset of this paper, the effects of a US market downturn would be global and geopolitical. Several decades of US current account deficits financed by capital account inflows have made foreigners significant holders of US equities. World equity market movements are also highly correlated -- a significant US 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 US. 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 US, such as China, are likely to be hurt most by a US stock market downturn.

Total world GDP is estimated to rise about \$35 trillion in 1999. A 30 percent decline in the US stock market, discussed earlier in this paper, amounts to \$3 trillion, about 11.5 percent of global GDP, or an amount that is about six times the loss represented by the US savings and loan crisis relative to the GDP of the United States. If events trigger a contraction that moves the US stock market significantly lower, investors around the world need to be prepared for a global slowdown that is several times that experienced by the United States in the post-S&L crisis years of the early 1990s.

It is unlikely that a single event could trigger a capital market contraction that, either at its initial stage or one of its intermediate stages, would involve a large US stock market sell-off. The risk to the US stock market is that several elements of a matrix of risks reach tipping points at roughly the same time.

The 1998 Experience

A less acute but similar circumstance existed in the spring 1998. At that time there was general sense of growing risk. Nothing specific could be authoritatively pointed to, but asset price levels relative to earnings or capital were rising through past historic peaks with no end in sight. Indonesia had just collapsed. Russian interest rates were at 150 percent, and there was growing concern that the Federal Reserve needed to raise rates further.

A matrix of risk and uncertainty existed that needed only an unexpected, adverse event to tip key elements toward contraction and trigger an investor reaction. In 1998, we believe, that event was the Pakistan-India nuclear weapons tests. The wholly unpredicted tests changed asset-manager perceptions of emerging market risk. It was seen to be higher than thought - if two major developing countries could set off eleven nuclear weapons unexpectedly, then no one in the G7 had their hands on the geopolitical steering wheel.

To get portfolio risk down to managerially targeted levels in the higher risk environment, assets had to be sold. Financing Russia became impossible. The default five months later was inevitable. The subsequent failure of the most leveraged companies in the world, LTCM and several other interest-arbitrage funds, was unavoidable.²⁰

There are many explanations of what happened in 1998, but they all contain common, related elements. First, the triggering events were all post-Cold War transition adjustments to the new realities. Second, there was a large increase in financial market risk aversion. Third, there was a "herd" response on the part of asset managers. And, fourth, there was "contagion" -- losses in emerging market positions forced asset sales across the board, which in turn triggered further asset liquidations.

The workings of the fourth explanation - forced asset liquidations - is an example of the expression of asymmetric herding and contagion responses to unquantified and undiscounted risk. The tails of event distributions contained much higher probabilities than market makers expected. When the probabilities were revealed, the asset managers tried to sell the weak assets, but instantly found that there was almost no market for them. They sold what they could of their weak, emerging market and speculative assets, but ultimately they had to sell some of their high quality high-tech stocks, corporate bonds, and European stocks and bonds. They sold everything, and they sold fast, until their total positions were down to acceptable levels. They also confirmed one of the harshest realities of market finance -- not only can everyone not get out the door at once, but the door gets smaller as people go through it.

The losses in Russia were in the billions, so the loss-driven selling was in the many billions and touched every market.

The selling reached such a scale that it eventually required reductions in the largest position, possibly, in history - the dollar/yen carry trade. This trade involved borrowing in yen at about 2 percent, and investing the proceeds in US and European stocks and bonds paying 7 percent or more. To scale back the trade, US and European stocks and bonds had to be sold for dollars and d-marks, and then the dollars and d-marks sold for yen to pay back Tokyo-based banks. The result was a 20 percent drop in large-cap stock and non-government bond prices and an offsetting 20 percent rise in the yen against the dollar - all in about 60 days.

The resulting credit contraction drove companies back onto bank balance sheets and appeared to slow investment in the United States. The Federal Reserve in several stages cut rates 75 basis points to stem the worst effects of the contraction through year-end. European

rate reductions followed, intended to address longer-term economic trends in the new European Monetary Union countries.

Possible Trigger Events

Is there something like the India-Pakistan nuclear weapons tests, a Russian default, and an LTCM that we can point to that would trigger a downturn in 1999 or 2000? Not if the question asks for a specific event. If the question is posed, is there a set of post-Cold War transition conditions and fragile balance sheet structures that could trigger a downturn, the answer is, yes. The set includes: (1) a rise in long-term US interest rates resulting from slowing capital account inflows and PCW repricing of US consumption patterns; (2) more and more undersaved American households reacting to poor stock market performance by increasing their savings; (3) sharp increases in Japanese long-term interest rates as government debt issuance overwhelms public and private institutions' ability to absorb it; and (4) continued fragmentation of the Cold War consensus and adverse geopolitical surprises. The Senate's rejection of the nuclear weapons test ban treaty, a loss of momentum on free trade, and upticks in China/Taiwan and India/Pakistan tensions, are examples of the fourth category.

Measures of Stock Market Valuation

We provide now a rough survey of stock valuation approaches. They fall into roughly five categories - company-specific, market-technical, relative-return, historic-comparative, and macroeconomic. The research of one of the working group's own members, John Makin, is representative of the best thinking within in relative-return and macroeconomic approaches. With the notable exception of Glassman and Hassett, standard equity valuation approaches at mid-year were signaling that the US stock market was overvalued and contained elements of unsustainable leverage.

Because it is so widely discussed, it is useful to look at the Glassman-Hassett argument at the outset. Hassett and Glassman say bond prices have been as volatile as equity prices in the past decade and that the risk premium attached to stocks is actually falling and could go to zero. At

zero, given current expected interest, growth rates, and 20 to 30 year holding periods, the price-earnings multiple could soar as high as 100, which would put the Dow Index at 36,000, three times its current level. In their own words:

Over a one-year period, in two-thirds of the years, the standard deviation for stocks is 19 percent. This means that, in two-third of the years, the return on a stock will vary by no more than nineteen percentage points from the average - in either direction. Since the average real return is about 7 percent, returns should vary two-thirds of the time between plus 26 percent and minus-12 percent. That's very risky. But, over ten-year holding periods, standard deviation drops to 5 percent; over thirty-year periods, to 2 percent. So the range, two-thirds of the time, is from 5 percent to 9 percent. That's not risky at all.

What is truly incredible about these long-term risk figures is that they are lower than those for Treasury bonds and even Treasury bills, which mature in a year or less. If you keep your money at work for twenty years or more, then stock are actually less risky than short-term T-bills rolled over annually.²¹