# Short-Term Gain for Long-Term Pain: The Real Story of Rubinomics 

Dean Baker<br>Center for Economic and Policy Research<br>1611 Connecticut Ave., NW, Suite 400<br>Washington, DC 20009<br>202-293-5380 (ext 114)<br>baker@ cepr.net

November 11, 2005

Paper presented at the Hofstra University $11^{\text {th }}$ Presidential Conference: William Jefferson Clinton, the "New Democrat" from Hope.

## Introduction

A mythology has developed around the economics of the Clinton era. According to the mythology, the policies designed by Clinton's Treasury Secretary Robert Rubin laid the basis for the prosperity of the late 1990s. These policies centered on getting the deficit down, and later running budget surpluses. The short-term pain associated with higher taxes and lower spending had a payoff in the form of more investment, more rapid productivity growth, higher job growth and rising real wages and income.

This is nice mythology, but it is almost completely at odds with the reality. The growth burst of the late 1990s had little to do with deficit reduction (at least directly) and had everything to do with two unsustainable bubbles - a stock market bubble and a dollar bubble. The Clinton administration chose to ride the prosperity from these bubbles, even though it should have recognized that this prosperity was artificial, and would inevitably lead to a crash, followed by a painful adjustment process.

The first section of this paper details the main trends in the economy in the Clinton years. The second section describes how the bubbles drove the economy and created the prosperity of the late 1990s. The third section outlines the long-term costs associated with the bubbles. The conclusion briefly explains how the bubbles could have been contained before they grew to such dangerous sizes.

## Section 1: Deficit Reduction and the Beginnings of the Bubble Economy

When President Clinton came into office in 1993 he had two conflicting agendas that he had promised to pursue. The first was his "public investment" agenda, centered on promoting investment in infrastructure, research and development, and education and training. This position was most strongly identified with Labor Secretary Robert Reich. The second agenda was deficit reduction - the belief that the top priority must be to reduce the deficit to a sustainable level, if not eliminate it altogether. This position was most strongly associated with then Treasury Secretary Lloyd Bentsen and Robert Rubin, the head of Clinton’s National Economic Council.

Clearly it was not possible to both promote substantial increases in public investment and reduce the deficit at the same time. After the defeat of a modest stimulus package in the summer of 1993, the main focus of Clinton's economic policy through the rest of his administration was the reduction of the deficit. As the deficit shrank more rapidly than had been anticipated, the goal shifted to a balanced budget and later to paying off the national debt. Throughout this process, public investment took a back seat, with most categories of public investment no higher (measured relative to the size of the economy) at the end of Clinton's administration than at the beginning. ${ }^{1}$

The rapid decline in the deficit was partly due to tax increases and spending restraint, and partly to an unexpected surge in tax revenue. ${ }^{2}$ In fiscal 1992, the last full fiscal year before President Clinton took office, the deficit was $\$ 290.4$ billion or 4.7 percent of GDP. The deficit in 1997, the last budget prepared in his first term in office, was just $\$ 22.0$ billion, or
0.3 percent of G D P. In 2000, the surplus peaked at $\$ 236.4$ billion, an amount equal to 2.4 percent of GDP.

Whatever the cause, President Clinton certainly could boast of solid economic growth, especially through his second term in office. For his presidency as whole, annual GDP growth rate averaged 3.6 percent. Job growth averaged 2.8 million per year and the median hourly wage rose at a 0.5 percent annual rate. For the second term, annual GDP growth averaged 3.9 percent, job creation averaged 2.8 million per year, and the real median wage grew at a 2.0 percent annual rate, with unemployment falling to just 4.0 percent in $2000 .{ }^{3}$ By these statistics, and most other measures, the economy's performance during Clinton's second term was the best since the late sixties.

The proponents of deficit reduction took this performance as a vindication of their program. However, closer examination shows that this was not the case. According to the deficit reduction proponents, lower deficits were supposed to reduce demand for borrowing and thereby lead to lower interest rates. Lower interest rates should then stimulate both investment and net exports (by lowering the value of the dollar), which would then boost the economy. The boost to investment would not only increase demand, by increasing the amount of capital per worker; it would lead to higher productivity and thereby higher potential output.

Regardless of the general validity of this theoretical view of the economy, it clearly does not explain the growth spurt in the mid and late 1990s. None of the pieces of the argument fit. Real interest rates did fall, but not by an especially large amount, there was an upturn in
investment, but it was not nearly large enough to produce the sort of upturn in productivity the economy actually experienced, and the dollar and net exports went the wrong way - the dollar rose and net exports fell. ${ }^{4}$

Table 1 shows real interest rates for 10-year treasury bonds, 30-year mortgages, and high grade corporate debt for the last three years of the major business cycles from the sixties through the 1990s. While the real interest rates of the second Clinton term are somewhat lower than during the eighties cycle, they are much higher than in either the sixties or seventies cycles. Even the gap with the eighties cycle appears much less dramatic when focusing on private debt. As the government began running a surplus and paying down its debt, investors were willing to pay a scarcity premium to obtain U.S. government debt, increasing the spread with private debt. Of course it is the interest rate on private debt that affects the real economy. As can be seen, the declines in the real mortgage rate and the real corporate bond rate were just 0.6 and 0.7 percentage points, respectively. Real mortgage and corporate rates remained several percentage points higher than their levels in the sixties and seventies cycles.

Modest declines in interest rates do not produce explosions in investment, and no such explosion took place in the Clinton years. Table 2 shows the shares of the major components of GDP for the middle Clinton years (95-97), the late Clinton years (98-2000) and the late seventies and late eighties. While there is an increase in investment over this period, it is dwarfed by the increase in consumption. The investment levels of the Clinton years were higher than in the eighties cycle, but they never reached the peaks hit in the seventies cycle. It is also important to note that the Clinton years look even less impressive if
net investment is used as the basis for comparison. Column 6 of Table 2 shows that net investment measured as a share of GD P was 1.0 percentage point higher than in the eighties, but 1.6 percentage points lower than in the seventies cycle. ${ }^{5}$

In spite of the limited upturn in investment, there was undeniably a sharp upturn in productivity growth. Annual rates of productivity growth are shown in the last column of Table 2. As can be seen, productivity growth turned sharply upward beginning in 1996, even before there had been any substantial upturn in investment. (The upturn actually began in the fourth quarter of 1995, when productivity grew at a 3.1 percent annual rate.) There is no plausible story in which the surge in productivity growth that originated in 1995 can be attributed in any important way to the increases in investment witnessed up to this point. ${ }^{6}$

Rather than being a result of investment induced by deficit reduction, the surge in productivity appears to have been an exogenous development associated with information technology. This is demonstrated most clearly by the Bureau of Labor Statistics' measure of technology induced productivity growth (multifactor productivity growth). Technology contributed an average of just 0.4 percentage points to productivity growth over the years from 1973 to 1995. This increased by 0.7 percentage points to an annual rate of 1.1 percentage point in the years 1995 to 2000 . Whether or not the Clinton era policies made it easier to embrace these technologies is an open question, but clearly deficit reduction cannot be given the credit for the upturn.

## Section 2: The Dynamics of the Bubbles

As the data in Table 2 show, the largest increase in GDP shares occurred in consumption, not investment. The consumption share of G DP in 2000 was 68.7 percent, more than 3 full percentage points higher than its share at the peak of the last business cycle. There was a simple explanation for this consumption surge - the wealth effect associated with the stock bubble. At this point, there is a large body of literature linking stock wealth with consumption. ${ }^{7}$ The conventional range of estimates is that an additional dollar of stock wealth leads to an additional 3-4 cents of consumption spending.

At the peak of the stock bubble in 2000, the total value of the equity issues held by the household sector was $\$ 11.0$ trillion. This corresponded to a price to earnings ratio of $30 .{ }^{8}$ Historically, the price to earnings ratio has averaged approximately 14.5. Measured against this ratio, at the peak of the stock bubble in 2000, households held approximately $\$ 5.0$ trillion of bubble wealth in stocks, which would have led to $\$ 150$ to $\$ 200$ billion in additional consumption due to the wealth effect. This would explain most of the upturn in consumption seen in this period, as the savings rate fell to what were at the time record lows. ${ }^{9}$ In short, one of the main props of the Clinton era prosperity was a consumption boom, driven by the stock bubble.

A second prop was a surge in imports driven by the rising value of the dollar. Early in the Clinton administration the dollar fell against most major currencies. This was viewed by many economists as a predicted and desirable result of deficit reduction. Lower deficits lead to lower interest rates, which should make dollar denominated assets relatively less attractive to both domestic and foreign investors. The decline in the value of the dollar makes U.S.
goods more competitive in world markets, reducing imports and increasing exports. The change in relative prices should reduce or eliminate the trade deficit, making the United States again a net exporter of capital, the normal situation for a wealthy country.

While events loosely followed this script in the first half of the Clinton years -- the trade deficit was 1.2 percent of GDP in 1997, compared to a peak deficit equal to 3.1 percent of G DP in 1987 -- there was a sharp turn of events with the rise of the dollar beginning in 1996. Instead of allowing the dollar to drift downward, Robert Rubin committed the country to strong dollar policy.

This commitment, coupled with the flight to dollars following the East Asian financial crisis in 1997, led to a rise in the dollar of 26 percent on a trade weighted basis. ${ }^{10}$ The higher dollar had the positive short-term effect of making low cost imported goods available. This reduced inflation and raised average living standards for the country as a whole. ${ }^{11}$ However, it also led to a rapid increase in the trade deficit. By 2000, the trade deficit had risen to a then record 3.9 percent of GDP.

The trade deficit has continued to rise in subsequent years, even as the dollar has lost some of its value. Trade adjusts slowly to changes in currency values. The trade deficit was rising very rapidly at the end of the Clinton years. It continued to increase in 2001, although the rate of increase was slowed by the onset of the recession. The trade deficit for 2004 was 5.2 percent of GDP. It almost certainly would have been even higher if the dollar had not begun to decline from its earlier level.

In sum, the prosperity of the late Clinton years rested in large part on two unsustainable bubbles. The stock bubble prompted a huge surge in consumption, as the wealth effect from inflated stock prices drove savings rates to what were at the time record lows. The bubble also led to an upsurge of investment, much of which was subsequently revealed to be wasteful, after the collapse of the stock bubble. The dollar bubble allowed for low priced imports and a higher standard of living than would otherwise be possible, but this came at the price of soaring trade deficits. The economy has yet to complete its adjustment to this second bubble.

## Section 3: The Costs of the Clinton Bubbles

While the Clinton era bubbles did create prosperity in the short-term, this prosperity came at a substantial price, not all of which can be fully appreciated today. Starting with the stock bubble, the negative long-term effects are largely the flip-side of the positive short-term effects. At the macro level, just as the bubble provided a huge boost to demand through both investment and consumption expenditures, its collapse led to a substantial falloff in demand.

This was seen most clearly in the sharp downturn in investment that the economy experienced in 2001. Nominal investment fell by more than $\$ 50$ billion from 2000 to 2001, leading to a decline of a full percentage point in the investment share of GDP. The recession of 2001 was the first investment-led recession in the post-war period. All prior recessions had been driven primarily by a drop in home building and car purchases due to rising interest rates. This distinction is important, because it is very easy to recover from this more traditional form of recession - the Fed simply lowers interest rates, which boosts home
construction and car buying, an effect that is especially strong since the falloff in these sectors during the recession leads to pent-up demand.

However, it is much harder to stimulate the economy when the recession is due to a downturn in investment. Investment is not very sensitive to interest rates, and even sharp declines in interest rates are likely to only have a minimal impact on investment. The route that the Fed chose to boost the economy following the 2001 recession was to promote further expansion of the housing bubble -effectively using the expansion of one bubble to counteract the collapse of another bubble (Baker, 2002). As mortgage rates fell to 50-year lows, a spurt in home building and a surge in consumption (driven by mortgage refinancing) sustained a modest recovery. However, it is only a matter of time before the economy has to deal with the wreckage from the collapse of this new bubble.

The stock bubble also led to much misdirected investment. When the NASDAQ was at its peaks in 1999 and 2000, many companies with no coherent business strategy were able to raise hundreds of millions, or even billions, by issuing stock. This led to much wasted investment, most of it in the tech sector.

The bubble also created the basis for the accounting scandals of the late 1990s. At a time when many investors were willing to accept at face value almost any claim made by corporate executives, it was easy to hide accounting tricks or outright fraud at companies like Global Crossing, Enron, and WorldCom.

The stock bubble also laid the basis for the pension crisis of the last few years. Most companies with traditional defined benefit pension plans were able to contribute little or nothing to these plans during the bubble years, because the stock market rose enough to meet required funding levels. ${ }^{12}$ However, when stocks tumbled in the 2000-2002 crash, many of the country's largest pension funds were suddenly hugely under-funded. This shortfall posed a substantial burden on even the healthiest companies. However, defined benefit pensions are concentrated in the manufacturing sector, which has been hard hit by the overvalued dollar. As a result, many companies with defined benefit pension plans were forced into bankruptcy and their pensions were turned over to the Pension Benefit Guarantee Corporation, which is now facing insolvency.

Probably the most serious fallout from the stock bubble was that it discouraged millions of workers from saving enough to prepare themselves sufficiently for retirement. With the market rising at double digit rates through the second half of the 1990s, many workers not only assumed that past gains would be enduring, but that this rate of growth would continue. As a result, they saw little reason to save from current income. It is remarkable, that at a time when virtually the entire baby boom cohort was in its peak savings years, the savings rate hit the lowest levels seen up until that point. While saving as a share of disposable income averaged 9.6 percent in the seventies, and 9.0 percent in eighties, it averaged just 3.3 percent from 1996 to 2000 , hitting 2.3 percent in 2000 itself. ${ }^{13}$

The collapse of the bubble also hurt millions of older workers who lost much of their retirement savings, and caused them to change their retirement plans in huge numbers. From January of 2001 to January of 2005 the number of workers over age 55 rose by 4.1 million,
an increase of 22.2 percent. This growth is especially striking given the weakness of the labor market during this period. Employment of workers under age 55 actually fell by 1.7 million between 2001 and 2005. ${ }^{14}$

The country has yet to feel the full impact of the adjustment from the dollar bubble because it has only partially deflated. The trade deficit continues to expand even as the dollar has begun to decline from the peaks reached in 2002. The dollar will surely have to fall much further before the deficit reaches a sustainable level. The short-term impact of this adjustment process will be very painful - it will be the exact reverse of the benefits of the high dollar in the 1990s. Import prices will rise, pushing up inflation and lowering living standards.

The presence of inflationary pressures due to rising import prices will make it especially difficult to pursue expansionary policies to boost the economy following the collapse of the housing bubble. The Fed will be under serious pressure to maintain high interest rates to support the dollar and contain inflation, rather than lowering rates to boost demand. Of course the exact dynamic of this process is impossible to predict, but the prospect of falling demand coinciding with rising prices is not a pretty story.

As a long-term phenomena, the late 1990s surge in the dollar was especially unfortunate. With the baby boomers still in their peak earning years, this was exactly the period when the United States should have been accumulating a large quantity of foreign assets to help meet the expense of the baby boomers' retirement. Instead, the United States sold off a large portion of it capital stock to foreign investors. As a result, the country will be exporting a
substantial percentage of its output to foreign investors at the same time the baby boomers are retiring in large numbers.

Finally, the process of losing industry to foreign competition is not easily reversible. When factories shut down because an over-valued dollar has made them uncompetitive, their work force scatters and the machinery is not maintained. If the over-valuation is eventually corrected, eight or ten years later, the factory is unlikely to reopen, even if it would have been competitive had the dollar never become over-valued. This loss of capacity may make it especially hard to restore the trade deficit to a sustainable level. It could mean that the dollar has to fall much more than would otherwise have been the case - reaching levels that are far lower than the ones in place before the dollar bubble. This implies even more inflation and a greater decline in living standards.

## Conclusion: How Clinton/Rubin Missed the Boat

It was easy to recognize that both the stock market and the dollar were experiencing unsustainable bubbles in the late 1990s. The stock market eventually reached price to earnings ratios that were twice the historic average at a time when the Congressional Budget Office (CBO) was actually projecting that profits would fall in real terms over the next decade (CBO , 2000, Table 2-1). There was no way to reconcile these projections, unless stockholders were willing to accept returns that were only slightly higher than those available on government bonds - an implausible proposition. ${ }^{15}$

Similarly, the over-valuation of the dollar should have been apparent by the surge in the trade deficit. The dollar is the main mechanism equilibrating trade. While there is no need to
have balanced trade (just like there is no need to have a balanced budget), it clearly is impossible to sustain a large and growing trade deficit, which was the path that Rubin's high dollar policy set the country along.

Piercing these bubbles would have required political courage, but would not have been difficult. If the Treasury Secretary, the Fed Chairman, or any high-profile government official had made a point of showing that price to earnings ratios of 30 were inconsistent with all plausible estimates of future profit growth, it is difficult to believe that the market would not have reacted. Certainly any fund managers who ignored this warning would be facing lawsuits and job loss when confronted by the inevitable crash. Similarly, talking the dollar down can go a long way, as can the Treasury's ability to intervene directly in currency markets. The United States does not have to keep an over-valued currency, unless it wants one.

But no one in a position of responsibility chose to act prudently. Our political leaders' decision to ignore dangers of the stock bubble, and to actively promote the dollar bubble, harmed the economy in ways that we will be feeling for decades to come. Allowing, or even encouraging, the growth of these bubbles was one of the greatest mistakes in economic policy in the history of the United States.

## Endnotes

[^0]
## References

Baker, D. 1997. "Saving Social Security With Stocks: The Promises D on't Add Up." New York, NY: Century Foundation.

Baker, D. 2000. "D ouble Bubble: The Over-Valuation of the Stock Market and the D ollar." Washington, D .C.: The Center for Economic and Policy Research [www.cepr.net].

Baker, D. 2002, "The Run-Up in Housing Prices: Is It Real or Is It A nother Bubble?" Washington, D.C.: The Center for Economic and Policy Research [www.cepr.net].

Congressional Budget Office. 2000. E conomic and Budget 0 utlook: Fiscal Y ears 2001-2010. Washington, D .C.: G overnment Printing Office.

D ornbusch, R. 1985. D ollars, D ebts, and D eficits. Cambridge, MA: MIT Press.
Dynan, K. and D. Maki, 2001. "D oes the Stock Market Matter for Consumption?" Working Paper 2001-23. Washington, D .C.: Board of G overnors of the Federal Reserve Board.

Economic Report, of the President, 2004. Washington, D .C.: U.S. G overnment Printing Office.

Maki, D. and M. Palumbo, 2001. "Disentangling the Wealth Effect: A Cohort Analysis of Household Saving in the 1990s." Working Paper 2001-21. Washington, D .C.: Board of G overnors of the Federal Reserve Board.

Mishel, L., J. Bernstein, and H. Boushey, 2001. The State of W ork ing A merica, 2002-03. Ithaca, NY: Cornell University Press.

## Table 1

Real Interest Rates in the Last Four Business Cycles

|  | Treasury <br> Bond <br> (10-year) | Mortgages <br> (30 year) | Corporate <br> Bonds <br> Aaa |
| ---: | :---: | :---: | :---: |
| 1967 | 1.9 | 3.4 | 2.4 |
| 1968 | 1.4 | 2.7 | 1.9 |
| 1969 | 2.0 | 2.8 | 2.0 |
| Average | $\mathbf{1 . 8}$ | $\mathbf{2 . 9}$ | $\mathbf{2 . 1}$ |
| 1977 | 1.0 | 2.6 | 1.6 |
| 1978 | 1.4 | 2.6 | 1.7 |
| 1979 | 1.1 | 2.5 | 1.3 |
| Average | $\mathbf{1 . 2}$ | $\mathbf{2 . 6}$ | $\mathbf{1 6}$ |
|  |  |  |  |
| 1987 | 5.7 | 6.6 | 6.7 |
| 1988 | 5.5 | 5.8 | 6.3 |
| 1989 | 4.7 | 6.3 | 5.5 |
| Average | $\mathbf{5 . 3}$ | $\mathbf{6 . 2}$ | $\mathbf{6 . 2}$ |
|  |  |  |  |
| 1998 | 4.2 | 6.0 | 5.4 |
| 1999 | 4.3 | 5.6 | 5.6 |
| 2000 | 3.8 | 5.3 | 5.4 |
| Average | $\mathbf{4 . 1}$ | $\mathbf{5 . 6}$ | $\mathbf{5 . 5}$ |

Source: E conomic Report of the President, 2004 , Table B-73.

## Table 2

## Historical Perspectives on The Composition of GDP and Productivity Growth in the Clinton Years

## Shares of GDP

|  | Consumption | Investment | Housing | Govemment | Net Exports | Net Investment | Productivity Growth |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1977 | 63.0 | 11.3 | 5.4 | 20.4 | -1.1 | 4.9 | 1.6 |
| 1978 | 62.3 | 12.2 | 5.7 | 19.8 | -1.1 | 5.8 | 1.3 |
| 1979 | 62.1 | 13.0 | 5.5 | 19.5 | -0.9 | 6.1 | -0.4 |
| Average | 62.4 | 12.2 | 5.6 | 19.9 | -10 | 5.6 | 0.8 |
| 1987 | 65.4 | 11.1 | 4.9 | 21.1 | -3.1 | 2.9 | 0.3 |
| 1988 | 65.7 | 11.0 | 4.7 | 20.4 | -2.2 | 3.0 | 1.6 |
| 1989 | 65.6 | 11.1 | 4.4 | 20.0 | -1.6 | 2.9 | 0.7 |
| Average | 65.6 | 11.1 | 4.7 | 20.5 | -2.3 | 2.9 | 0.9 |
| 1995 | 67.3 | 10.9 | 4.1 | 18.5 | -1.2 | 2.6 | 0.9 |
| 1996 | 67.2 | 11.2 | 4.3 | 18.1 | -1.2 | 3.0 | 2.5 |
| 1997 | 66.8 | 11.7 | 4.2 | 17.7 | -1.2 | 3.4 | 2.0 |
| Average | 67.1 | 11.3 | 4.2 | 18.1 | -1.2 | 3.0 | 18 |
| 1998 | 67.2 | 12.0 | 4.4 | 17.4 | -1.8 | 3.8 | 2.6 |
| 1999 | 67.8 | 12.2 | 4.6 | 17.5 | -2.8 | 4.0 | 2.3 |
| 2000 | 68.7 | 12.6 | 4.6 | 17.5 | -3.9 | 4.1 | 3.0 |
| Average | 67.9 | 12.3 | 4.5 | 17.5 | -2.8 | 4.0 | 2.6 |

Source: Economic Report of the President, Tables B1 and B49.


[^0]:    ${ }^{1}$ Federal non-defense spending on investment was equal to 1.8 percent of GDP in fiscal 2001, the same share as in 1992. Investment spending over the Clinton years averaged 1.7 percent of GDP (Office of Management and Budget, 2005, Table 9.1).
    ${ }^{2}$ The tax share of GDP increased from 18.1 percent in 1994, when the Clinton tax increases were already fully in place to 20.9 percent in 2000. The main factor appears to be a surge in capital gain income due to the stock bubble. This showed up both in capital gains taxes, and also in normal income taxes, since short-term capital gains are taxed as normal income.
    ${ }^{3}$ Data on GDP growth, job growth, and unemployment are taken from the Economic Report of the President, 2004, tables B-2, B46, and B42, respectively. D ata on the median wage is taken from Mishel, et al, 2003, table 2.6.
    ${ }^{4}$ Remarkably, discussion of the link between the budget deficit and the trade deficit (through the mechanism of an inflated dollar pushed higher due to high interest rates) virtually disappeared from public debate in the late 1990s. This link had been a staple of the conventional economic wisdom from the eighties through the mid-1990s e.g. Dornbusch, 1985).
    ${ }^{5}$ The gross investment share is inflated due to the fact that a large portion of investment in the period was in short-lived capital (computers and software) that depreciates quickly.
    ${ }^{6}$ In standard growth models, investment has a very modest impact on growth. For example, in a CobbD ouglas production function, the coefficient on capital is usually 0.3 . This means that a 1 percent increase in the capital stock leads to an increase of output of 0.3 percent. If the capital/ output ratio is approximately 2 to 1 , this means that an increase in investment equal to 2.0 percentage points of GDP would only increase output and productivity growth by 0.3 percentage points. The increase in investment witnessed by the time of the productivity upsurge was far less than 2.0 percentage points of GDP, and the increase in the annual rate of productivity growth was more than a full percentage point from the prior growth rates. The increase in investment during the Clinton years was far too small to explain the upsurge in productivity that the economy actually experienced.
    ${ }^{7}$ See Dynan and Maki, 2001, and Maki and Palumbo, 2001.
    ${ }^{8}$ The value of stock market wealth is taken from the Federal Reserve Board's Flow of Fund's data, Table B.100, lines 24 and 25 . The basis for the price to earnings ratio at the peak of the bubble is the value of outstanding corporate equity, $\$ 17.8$ trillion (Flow of Funds, Table L.213, line 19) and the after tax profits of U.S. corporations, $\$ 552.7$ billion (Economic Report of the President, 2004, Table B-28).
    ${ }^{9}$ The savings rate has fallen even lower in the years since the collapse of the stock bubble, driven by a housing bubble. The housing bubble had its beginning in the Clinton years, but did not attain dangerous dimensions until after he left office [Baker, 2002]
    ${ }^{10}$ This is the cumulative rise in the real value of the dollar from 1996 to 2001, using the Broad Index, Economic Report of the President, Table B-110.
    ${ }^{11}$ It is important to note the redistributive effect of a high dollar. It reduces incomes in the traded goods sector, most importantly manufacturing, by lowering the price of competing goods. This means that individuals who are not working in sectors that directly face international competition gain from an overvalued dollar at the expense of workers who do face this competition.
    ${ }^{12}$ One of the problems of the current system of pension accounting is that it creates a dangerous circle in which rising stock prices allow companies to contribute less to their pension fund, and thereby report higher profits. This then leads a further run-up in stock prices. As defined benefit pension plans dwindle in importance, this phenomena is likely to be less important in future years, but clearly it was one of the factors had helped to contribute to the bubble at the end of the 1990s.
    ${ }^{13}$ E conomic Report of the President, 2004, Table B-30.
    ${ }_{14}$ These data come from the Bureau of Labor Statistics Current Population Survey, Table A-5.
    ${ }^{15}$ See Baker 1997, and Baker, 2000 for pieces that outlined the bubble argument at the time.

