

# The Controversial Stock Wealth Effect



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June 2001

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## **The Controversial Stock Wealth Effect**

As noted by David Wessel in a recent *Wall Street Journal* article, economists inside and outside the Fed differ over how much stock wealth affects the economy. Stock wealth plays a role in most mainstream econometric models of the U.S. economy. For example, according to the Federal Reserve Board's model, a 20 percent decline in stock prices lowers GDP by around 1¼ percent after one year. Nevertheless, there is some uncertainty and controversy over the link between lower stock prices and a slower economy, some of which reflects changes in economic behavior. But some of this stems from the difficulty in sorting out how much lower stock prices directly slow growth from how much they simply reflect worsening fundamentals that are really slowing the economy.

My presentation briefly addresses these issues. First, I will review how stock prices affect firms, focusing on the cost and availability of financing, particularly that of venture capital. Then, I'll turn to the controversy over how much the stock market affects households and review some new evidence about the behavior of shareholders and how rising stock ownership rates affect consumer spending. My bottom line is that although some criticisms about whether stock prices affect the economy have some validity, and although there is some uncertainty about the magnitudes of these effects, they do not overturn the existence of stock market effects.

### **How Lower Stock Prices Affect Firms**

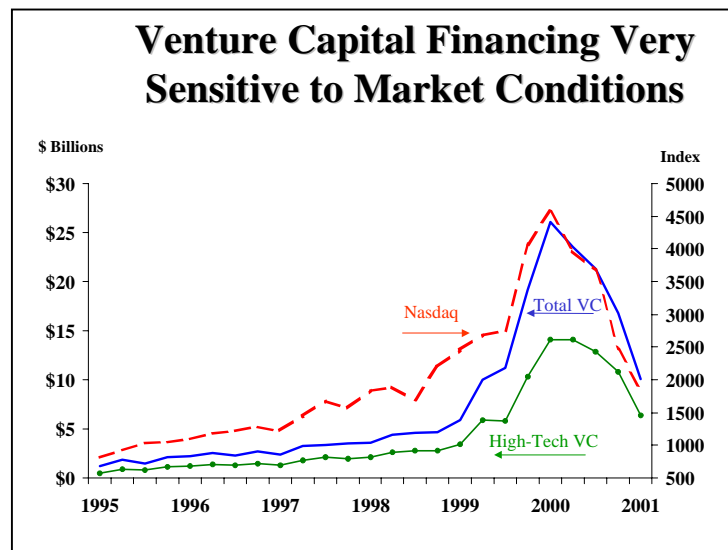
Declining stock prices affect firms in several ways. First, lower stock prices, especially induced by profit warnings, increase shareholder pressure on managers to cut costs by laying off workers and scaling back investment. Second, the recent correction has put many stock options underwater and it is unclear to what extent workers will bargain for more cash in place of options and how this might affect payroll costs and inflation. Third, the factors dragging down stock prices typically spur investors to demand higher risk premiums, which boosts the cost of financing business investment. This takes the form of increased spreads of corporate bond and commercial paper interest rates relative to Treasury yields and lower prices for any new stock that any firm dares to offer. Aside from raising the going price of new finance, the increased uncertainty associated with lower stock prices can spook investors so much, that the availability of finance is reduced. Since the fall, this has been manifested in tighter standards for bank loans, a drying up of lower grade corporate bond issuance, increased difficulty in using stock swaps to finance mergers, a dearth of IPOs, and a sharp slowing of venture capital investment.

## How Lower Stock Prices Affect Firms

- **Shareholder pressure to boost profits**
  - layoffs, curtail investment projects
- **Alter worker acceptance of stock options?**
- **Higher cost of financing investment**
- **Reduce availability of finance**
  - loans, bonds, stocks, IPOs, venture capital

One source of uncertainty about the stock wealth effect is that we lack enough experience to pin-point how much the decline of the Nasdaq will impact small business formation by affecting the venture capital market. Venture capitalists live for the day when companies in which they have invested can issue stock on the Nasdaq. At that point, the liquidity and marketability of their investments rise, allowing them to cash in their winning investments. However, when the Nasdaq tanks—the red line—IPOs typically slow and new venture capital investments—the blue line—dry up because venture firms see lower expected returns. Along with the Nasdaq, overall venture capital investing has fallen off from the rapid pace of the late 1990s, particularly for high tech ventures, shown by the green line. Other venture capital investment, reflected by the gap between the blue and green lines, also trended with the Nasdaq. Nevertheless, because most of this investment is in business and consumer services, particularly in e-business and e-consumer service firms, the drop in other venture capital investment largely stems from the tech-wreck and the *dot com* bust.

## Venture Capital Financing Very Sensitive to Market Conditions



## **How Lower Stock Prices Affect Households**

Now let's turn to how lower stock prices affect household spending through two main channels. One is that lower stock prices are associated with greater uncertainty and lower confidence, particularly because layoffs typically increase during such periods. Another channel is through lowering household wealth. Indeed, most estimates of stock wealth effects imply that for every \$100,000 decline in stock wealth, consumption falls by roughly 3 to 5 thousand dollars over the long-run.

However, there is much controversy over the conventional view of how stock wealth affects consumer spending. Criticisms of the stock wealth effect fall into at least four categories. One is that the savings rate has not really fallen and thus, the long bull market had not pushed savings down and the recent correction will not slow consumer spending. Another is that any observed stock market effect merely picks up expectations or confidence about the future and so there is no independent wealth effect. A third criticism is that stock wealth is too highly concentrated among the super-wealthy for it to affect consumption. Finally, some economists are concerned that estimates of stock wealth effects are too imprecise to be useful.

### **Criticisms of the Stock Wealth Effect on Consumption**

- **Savings mismeasured, no wealth effect**
- **Stocks only reflect confidence/expectations**
- **Wealth too concentrated at the top**
- **Wealth effects imprecisely measured**

Some analysts question whether higher stock wealth has really lowered the savings rate, as measured by after-tax income minus consumer spending, because of measurement problems. They correctly point out that the income series used equals labor plus interest and dividend income minus taxes on those income sources and taxes on capital gains, even though realized capital gains are not included in the income measure. For this reason, the official savings rate is downwardly distorted by realized capital gains, especially in bull markets, such as that of the late 1990s. However, even correcting for this problem, higher wealth relative to income is associated with a lower savings rate.

## **Are Stock Wealth and the Savings Rate Negatively Related?**

- **Savings = after-tax income - spending**
- **After-tax income =**
  - Income from labor, interest, and dividends
  - Taxes on labor, interest, and dividend income
  - Taxes on realized capital gains
- **Corrected for capital gains, higher wealth associated with a lower savings rate**

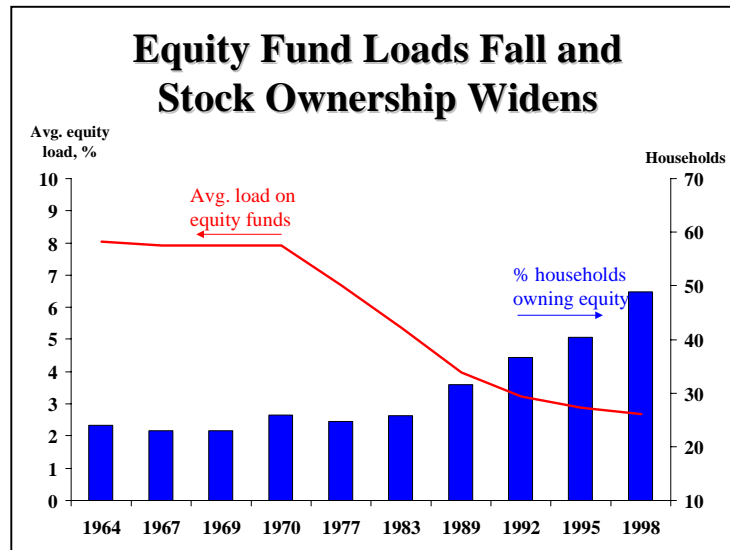
Another source of doubt over the wealth effect is whether any observed link between wealth and spending merely reflects that the stock market picks up expectations or confidence about the future. This view is supported by one Federal Reserve Board study, which found that the confidence of shareholders and non-shareholders behaved similarly just before and during the stock market downturn of 1997, that was associated with the Asian economic crisis. However, in cautioning against reading too much into consumer confidence measures, Chairman Greenspan has stressed that what people say about their confidence and how they spend can—and has—differed.

His views are supported by two new Federal Reserve studies that examine behavior across different types of households. One, found that the overall decline in the national savings rate owed to a fall in the savings rate among families in the top 40 percent of the income distribution, those most likely to own stocks, that offset a slight rise among the bottom 60 percent. The other study found that the consumer spending of shareholders was positively associated with stock price swings, while the consumption of non-shareholders was not affected.

## **Does Stock Wealth Only Pick Up Changing Expectations/Confidence?**

- **Stock owner & non-owner confidence similar around the stock market downturn of 1997**
- **1990's; savings rate falls among top 40% of the income distribution, edges up among bottom 60%**
- **Stock prices affect spending of shareholders but not non-shareholders**

Both studies also undermine the view that stock wealth is so highly concentrated among the top 1 to 5 percent of families that stock price declines are unlikely to affect spending. Furthermore, more households are exposed to the market, with stock ownership rates doubling from under ¼ of households in the 1970s to around ½ in the 1990s, as depicted by the bars in this chart from last month’s Board of Directors’ presentation. As I discussed last month, rising stock ownership rates owe to a rise in mutual fund ownership that is linked to a plunge in equity mutual fund commission fees.



Unlike the infrequent ownership rate data, the load series that I have constructed is available on a frequent enough basis to estimate models so that we can see whether rising stock ownership alters the stock wealth effect on consumption. Doing so addresses a concern that the stock wealth effect on consumption is too imprecisely estimated to be useful. In particular, I find that stock wealth has very unstable effects on consumer spending across different time periods in a conventional model. But, when I control for changing stock ownership rates by including mutual fund loads, I obtain much more reliable estimates, which imply that the overall sensitivity of spending to stock wealth has risen over time because of rising stock ownership rates. Nevertheless, I find that the stock wealth effect is still smaller today than what most conventional models estimate.

Let me put this in context. The conventional model implies that the 200 percent rise in stock wealth posted between 1994 and 1999 bolstered consumption by roughly 5.6 percentage points, as indicated in the top upper-left entry. Despite the correction, household stock wealth is still **much** higher than it was in the mid-1990s, about 150 percent higher. For this reason, consumption is still being boosted by stock wealth gains since 1994 and according to the conventional model, the post correction boost is 4.6 percent, the second from the top upper-left number. This implies that the correction will

reduce the stock wealth boost to consumption by roughly 1.3 percent—the third from the top lower-left entry—and the direct boost to GDP by 0.9 percentage points, the bottom-left entry.

<b>Estimated Stock Wealth Effects on Consumption</b>		
	<b>Conventional model estimates</b>	<b>Mutual fund model estimates</b>
<b>Boost: ↑ 200% stock wealth over '94-'99</b>	<b>+ 5.6</b>	<b>+ 3.4</b>
<b>Post-correction boost: ↑ 150% over '94-'01</b>	<b>+ 4.3</b>	<b>+ 2.6</b>
<b>Correction effect on consumption</b>	<b>- 1.3</b>	<b>- 0.8</b>
<b>...and consumption's direct effect on GDP</b>	<b>- 0.9</b>	<b>- 0.5</b>

According to my mutual fund model, the wealth gains posted between 1994 and 1999 bolstered consumption by roughly 3.4 percentage points—the top upper-right number—but the post-correction boost is 2.6 percentage points, the second upper-right entry. Thus, through the wealth effect, the correction reduces the stock wealth boost to consumption by 0.8 percent—the third lower-right number—and the direct boost to GDP by 1/2 percent—the bottom-right corner.

In viewing these estimates, note that an economic shock, which drives down stock prices, can slow the overall economy through other channels. For example, as discussed in the May Board presentation, concerns over the profitability of investment can slow GDP growth by reducing investment and labor income growth, as well as through lowering stock prices.

## Conclusions

There are three main conclusions that I draw. First, while criticisms of the stock wealth effect have some validity, a careful review of the evidence implies that stock wealth does affect consumption. Second, there are several unclear effects of the stock market on businesses because the relationship between firms and the stock market has changed a lot. The plunge in venture capital investment is one example. In addition, because CEOs are held more accountable for their companies' stock prices, its unclear by how much stock price declines will induce them to cut investment and layoff workers. The third conclusion I draw is that while the conventional stock wealth effect is likely overstated, the underlying impact on consumption and on firms has likely risen over time, due to factors such as the rise of mutual funds and venture capital which have democratized America's capital markets.

### Summary

- **Careful review of the evidence implies that stock wealth affects consumption**
- **Unclear effects on investment, venture capital/business creation and layoffs**
- **Conventional consumption effects overestimated, but effect on households and firms has likely risen**