

Southwest Economy



Michael Short

Beating Border Barriers in U.S.-Mexico Trade

Over the past 15 years, U.S. trade with Mexico has increased 400 percent—from \$48 billion to \$239 billion (*Chart 1*)—yet neither Mexico nor the United States has made the adjustments necessary to handle the growing traffic. Unlike U.S. commerce with any other nation but Canada, U.S.-Mexico trade is mostly truck trade. Whether truckers use busy Texas, California or Arizona crossings, they face congestion and long waits usually associated with government inspections and customs processing.

Restrictions on cross-border trucking add to the problems. Because the United States refuses to open its border to Mexican long-haul trucks—despite commitments it made under NAFTA—shippers have to rely on short-haul trucks to shuttle cargo across the border. These trucks haul in one direction only, clogging bridges, roads and inspection stations with empty trucks. It doesn't help that the clearing of trucks is still paper-based and the various government agencies operate independently.

As a partial solution, transportation researchers have recommended a prototype border facility that would involve electronic preclearing of northbound

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A Note to Our Readers

The three feature articles in this issue were written before the tragic events of September 11. The delays at our borders with both Mexico and Canada subsequent to September 11 underscore the thrust of the article on U.S.-Mexico trade. And the sharp decline in stock prices the week of September 17, when the markets reopened, reinforces John Duca's conclusion that the stock market plays a very important role in the U.S. economy.

Harvey Rosenblum
Senior Vice President and
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September 24, 2001

How Does the Stock Market Affect 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 about 1.25 percent after one year. Nevertheless, economists disagree about the extent to which lower stock prices directly slow growth and the extent to which they simply reflect worsening fundamentals that are slowing the economy.

This article briefly addresses the controversy surrounding these issues. First, I review how stock prices may affect firms and discuss some of the uncertainties about these effects. Then, I turn to the effects of stock wealth on households' consumption, discussing the mainstream view and several criticisms of it. Although some of these criticisms have validity and there is uncer-

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tainty about the precise magnitude of stock wealth effects, the evidence, on balance, indicates that sustained movements in stock prices are a channel through which shocks affect the economy.

How Lower Stock Prices Affect Firms

Declining stock prices affect firms in several ways, in addition to impacting their sales to consumers. First, stock price declines, especially those induced by profit warnings, increase shareholder pressure on managers to cut costs by laying off workers and scaling back investment. Nevertheless, it is difficult to sort out an independent stock price effect from the cutbacks in staff and investment that arise from profit-maximizing behavior in an economic downturn.

Second, a large stock price decline, such as that between early 2000 and early 2001, reduces the value of unexercised stock options, which falls as the gap narrows between a company's stock price and the price at which workers can buy stock under an option. However, given the relatively short period in which stock options have been a noticeable part of compensation and the lack of data, 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, such as a weaker or more uncertain profit outlook, may spur investors to demand higher risk premiums, which boosts the cost of financing business investment. Higher risk premiums can take the form of increased spreads of corporate bond and commercial paper interest rates relative to Treasury yields. They can also lower prices for new stock offered by firms. In addition, the increased uncertainty may spook investors so much that the availability of financing is reduced. In the recent market downturn, 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 initial public stock offerings and a sharp slowing of venture capital investment. However, it is difficult to determine just how much a deterioration in financial conditions driven by changes in fundamentals works through a drop in stock prices.

This same concern applies to a fourth, and perhaps most important, way that lower stock prices affect firms' behavior. According to Tobin's q theory of investment, firms have less incentive to invest in new capital if there is a fall in the ratio (q) of the cost of buying existing capital to that of buying new capital. In practice, the numerator of this ratio is typically based on the cost of buying existing firms (stock prices). While this theory is intuitive, it is difficult to sort out how much a change in investment fundamentals affects investment directly rather than indirectly through financial conditions and stock prices.

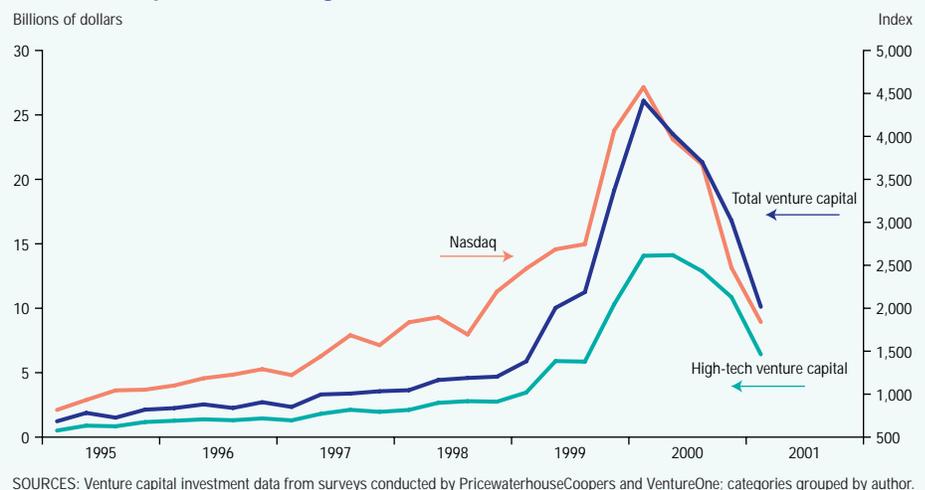
This is important because stock price changes could arise from various factors that have different ultimate effects on investment. For example, a drop in stock prices stemming from a decline in market sentiment (such as many analysts assumed in 1987) would be associated with smaller changes in

investment spending than would stock price swings reflecting changing fundamentals (for example, expected profits), as some analysts have interpreted the experience of late 2000 and early 2001. These problems in identifying the nature and channels of shocks may help account for why the q theory of investment has had a mixed record in tracking investment spending.¹

These concerns do not necessarily rule out stock price effects on business behavior; rather, they raise questions about the magnitude of such effects. The rising importance of venture capital for funding growing businesses also makes it harder to determine these magnitudes. In particular, we lack enough experience to pinpoint how much the Nasdaq decline will affect the venture capital market and thereby slow small business formation. Venture capitalists invest in pools of new or emerging businesses, in which they obtain equity or ownership stakes, with the hope that these firms can eventually issue stock on the Nasdaq. At that point, the liquidity and marketability of their investments rise, allowing them to eventually cash in their winning investments by selling their shares. However, when the Nasdaq tanks, initial public offerings typically slow and new venture capital investments dry up, partly because venture firms see lower expected returns (Chart 1) and partly because private equity holders have less

Chart 1

Venture Capital Financing Is Sensitive to Market Conditions



More households are now exposed to the market.... Rising ownership rates imply that changes in equity prices increasingly affect the wealth of families whose spending patterns are presumably more sensitive to wealth changes.

incentive to sell stakes in their company to other investors.²

As the Nasdaq fell in 2000, overall venture capital investing also slowed from the rapid pace of the late 1990s, particularly in the high-tech sector. Other venture capital investment also fell sharply in this period. Nevertheless, because most of this non-high-tech investment is in business and consumer services, particularly in e-business and e-consumer service firms, the decline in this investment is largely an indirect result of the downturn in high tech.

How Lower Stock Prices Affect Households

Aside from directly affecting firms, lower stock prices are associated with slower household spending for two possible reasons. First, lower stock prices are correlated with greater uncertainty and lower confidence, particularly because layoffs typically increase during such periods. Second, stock price changes affect consumer spending through a wealth channel. Indeed, most estimates of stock wealth effects imply that for every \$100,000 decline in stock wealth, annual consumption falls by roughly \$3,000 to \$5,000 over the long run. I refer to this second channel as the conventional stock wealth effect.

However, there is much controversy over the latter channel. Criticisms of the conventional stock wealth effect fall into at least three categories. One is that any observed stock market effect merely picks up expectations or confidence about the future (the first channel mentioned above), and there is no independent wealth effect. A second is that stock wealth is too highly concentrated among the superwealthy for it to affect consumption. Finally, some economists are concerned that estimates of stock wealth effects are too imprecise to be useful.

The foremost criticism of the conventional wealth effect is that any observed link between wealth and spending merely reflects the role of stock prices in picking up expectations or confidence about the future. Some economists, such as Hymans (1970), argue that stock wealth has little effect on consumption after controlling for consumer confidence, implying that stock

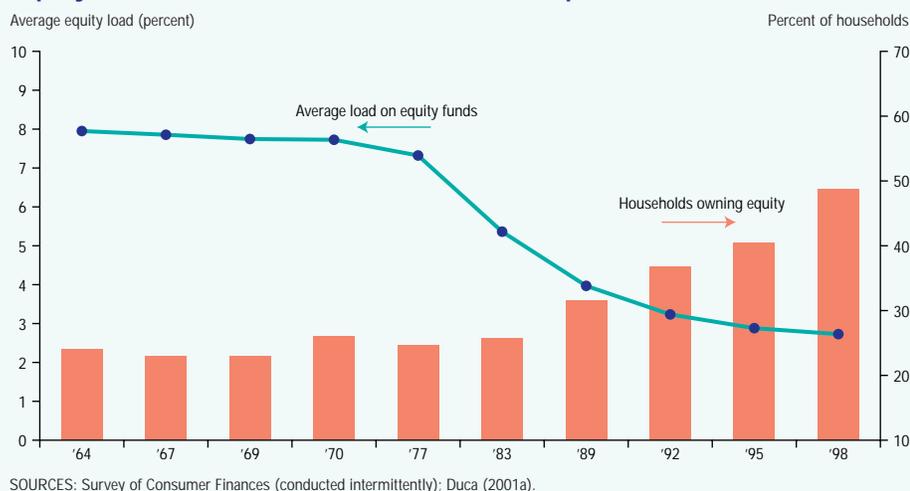
prices affect consumption via sentiment rather than through a wealth channel. More recently, Otoo (1999) finds that stock price changes did not affect the confidence of stock and non-stock owners differently just before and during the stock market downturn of 1997 that was associated with the Asian economic crisis. Otoo interpreted this finding as supporting the view that the information content of stock prices derives largely from expectations of future economic growth. Presumably, if confidence does not differ according to shareholder status during such episodes, then wealth effects may not be important. An argument against this interpretation is that stock prices alter people's expectations of future economic growth, whether or not they own stock.

In addition, using data across different groups of households, two new Federal Reserve studies provide evidence that stock prices affect consumer spending through a wealth channel. Maki and Palumbo (2001) find that the overall decline in the national saving rate was caused by a fall in the saving rate among families in the top 40 percent of the income distribution (those most likely to own stocks) that outweighed a slight rise among the bottom 60 percent. The other study, by Dynan and Maki (2001), finds that the consumer spending of shareholders is positively associated with stock price swings, while the consumption of nonshareholders is not affected.

Another criticism of the wealth effect is 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. According to this view, stock prices substantially affect the wealth of only the very rich, whose spending habits are not altered much by changes in asset values. However, the Maki and Palumbo study indicates that during the stock market boom of the late 1990s, the saving rate fell among the upper two income quintiles. In addition, more households are now exposed to the market, with stock-ownership rates doubling from under a quarter of households in the 1970s to around half in the 1990s (*Chart 2*). Coupled with evidence from the Dynan and Maki study that stock price changes affect shareholders' spending, rising ownership rates imply

Chart 2

Equity Fund Loads Fall and Stock Ownership Widens



SOURCES: Survey of Consumer Finances (conducted intermittently); Duca (2001a).

that changes in equity prices increasingly affect the wealth of families whose spending patterns are presumably more sensitive to wealth changes.

The third major criticism of the conventional view of the stock wealth effect on consumption is that empirical estimates of this effect are too imprecise to be useful in predicting or explaining consumer spending. A study by Ludvigson and Steindel (1999), of the Federal Reserve Bank of New York, finds that the estimated long-run impact of stock wealth on consumption varies a great deal when estimated over different sample periods. Because the authors include future income changes in their regressions, their estimates are likely to measure the true wealth effect rather than the tendency of stock prices to pick up expectations of future income.³

One explanation for their finding is that conventional models of consumption fail to control for changes in stock-ownership rates over time. This may alter how much stock wealth affects consumption, consistent with Dynan and Maki's conclusion. Duca (2001a, 2001c) finds that rising stock-ownership rates are attributable to a rise in mutual fund ownership that is linked to a plunge in equity mutual fund commission fees (Chart 2). Because equity funds were the only feasible way for many middle- and lower income families to own stock, the high commission fees (loads) of

earlier decades dissuaded many from investing in stocks. As these fees fell, presumably due to declines in the costs of processing transactions and running mutual funds, the incentive to invest in stocks rose.⁴ As shown in Duca (2001a), the rise in the overall equity-ownership rate in the United States reflects an increase in indirect ownership of stocks through mutual funds.

Unlike the infrequent ownership rate data, the load series I constructed is available on a sufficiently frequent basis to estimate whether rising stock ownership alters the stock wealth effect on consumption. Doing so addresses the concern of Ludvigson and Steindel that the stock wealth effect on consumption cannot be reasonably well estimated in conventional models of long-run consumption. I use similar estimation techniques (including income changes in the regressions), but 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.⁵ Nevertheless, my mutual fund modified model indicates that the stock wealth effect is smaller today than what most conventional models estimate.

To put this in context, consider the estimated impact of changes in stock wealth since the mid-1990s on consump-

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Table 1

Estimated Stock Wealth Effects on Consumption

	Conventional model estimates	Mutual fund model estimates
Boost: ↑ 200% stock wealth over 1994–99	+5.6	+3.4
Post-correction boost: ↑ 150% over 1994–2001	+4.3	+2.6
Correction effect on consumption	-1.3	-8

SOURCE: Author's calculations.

tion according to these models (Table 1). The conventional model, which does not control for changing stock-ownership rates, implies that the 200 percent rise in stock wealth posted between 1994 and 1999 bolstered consumption by roughly 5.6 percent. Despite the stock market decline from early 2000 through early 2001, household stock wealth is still about 150 percent higher than it was in the mid-1990s, so consumption is still being boosted by stock wealth gains since 1994. According to the conventional model, the post-decline boost is 4.3 percent. This implies that the recent market decline has reduced the stock wealth boost to consumption by roughly 1.3 percent.

According to the mutual fund modified model, however, the wealth gains posted between 1994 and 1999 bolstered consumption by roughly 3.4 percent, but the post-correction boost is 2.6 percent. Therefore, this model indicates that the recent decline in equity prices has reduced the stock wealth boost to consumption by 0.8 percent.

Conclusions

Three main conclusions emerge from the above discussion. First, the effects of the stock market on businesses are unclear because the relationship between firms and the stock market has changed a great deal. For example, the limited experience with venture capital makes it difficult to assess how much stock price swings will affect business formation. In addition, because senior managers are held more accountable for their companies' stock prices, it is unclear by how much stock price declines will induce them to cut investment and lay off workers. Second, while criticisms of the stock

wealth effect on consumer spending have some validity, a careful review of the evidence implies that stock wealth does affect consumption. Third, 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 that have democratized America's capital markets.⁶

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Notes

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¹ For a broad discussion, see the literature review article by Chirinko (1993). In addition, Oliner, Rudebusch and Sichel (1995) find that other models of investment outperformed a *q*-model.

² For further discussion, see Gompers and Lerner (2001).

³ Ludvigson and Steindel (1999) use the dynamic ordinary least squares (DOLS) regression technique devised by Stock and Watson (1993). In this type of regression, future as well as lagged changes in stock prices and incomes are included, along with current levels. As a result, any correlation of current stock prices with future income changes are implicitly taken into account when estimating the long-run effect of stock wealth.

⁴ It is conceivable that higher ownership rates could cause loads to fall if there are big enough economies of scale in running mutual funds. However, in a related study, I found that long-run movements in loads preceded changes in the percent of household stock assets held in mutual funds and that long-run and short-run movements in this portfolio share did not precede changes in loads. These findings suggest that the downswing in loads induced changes in stock-ownership rates. See Duca (2001d).

⁵ Specifically, estimates of coefficients on income, wealth, and wealth interacted with mutual fund costs vary little across different sample periods. In particular, the negative effect of loads on the sensitivity of consumption to wealth implies that because equity fund loads have fallen a great deal, the stock wealth sensitivity of consumption has risen. This is consistent with the view that broader stock-ownership rates would likely raise the average impact of stock wealth on consumer spending.

⁶ See Duca (2001b).

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