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What Goes Down Must Come Up

Shareholders who rode out the stock market's historic drop on October 19, 1987 may have some reason for optimism. According to a new study by NBER Research Associates **James Poterba** and **Lawrence Summers**, about half of the short-run variation in stock prices is attributable to transitory, or short-lived, components. These movements tend to die out over time, and prices revert to a long-run trend.

In **Mean Reversion in Stock Prices: Evidence and Implications** (*NBER Working Paper No. 2343*), Poterba and Summers analyze over 100 years (1871-1986) of returns to holding common stock on the New York Stock Exchange. They also consider the returns on investing in 17 foreign equity markets since World War II and the experience of 82 individual firms whose shares have been traded on the NYSE continually since 1926. They conclude that "the transitory component in stock prices is quantitatively important, accounting for the bulk of the variance in returns."

Unlike Poterba and Summers, many economists and stock market participants believe that the market follows a random walk; that is, that market movements are totally unpredictable. If this were so, it would be impossible to forecast future returns on the basis of historical data. The logic behind this view holds that if an increase or decrease in a stock price were even anticipated, then speculators would take large long and short positions and would drive prices to the point where future price movements no

longer were expected. This argument, used with statistical evidence suggesting the difficulty of predicting stock returns, is often invoked as proof that the stock market is "efficient;" that is, that market prices accurately reflect all available information about fundamental values (prices, earnings, dividends).

Poterba and Summers note that if stock prices follow a random walk, their movements over different periods (one month, one year, five years) should be proportional in size to the length of the periods. For example, stock prices should move 12 times as far on average in a year as they do in a month. However, Poterba and Summers's results are inconsistent with the random walk model.

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First, they find that the variance of returns over a year (12 months) is about 16 times as great as the variance of returns over one month: this suggests a positive association between successive monthly

returns. Second, the variance of returns over very long periods of time is *less* than the random walk model would predict. For example, the variation in returns over eight-year periods is less than eight times the variance over one-year intervals; in fact, it is less than five times the one-year variation. This suggests that stock prices have some tendency to decline after prolonged periods of increase, and to rise after periods of decline.

Poterba and Summers emphasize that their results do not imply that either they or their readers can make easy speculative profits. The tendency for reversals in stock price movements is so gradual that speculating on it is very risky. However, the authors do argue that their results raise questions about the widely accepted view that stock market prices are accurate measures of fundamental values.

How Much Have New Home Prices Risen since 1970?

Between 1970 and 1986, prices of single-family homes (adjusted for inflation) rose a total of only 3 percent in Atlanta and Dallas, 5 percent in Chicago, and a whopping 99 percent in San Francisco, according to a recent NBER study by **Karl Case** and **Robert Shiller**. Early in the period, from 1970-5, price increases were modest and fairly uniform in the four cities. From 1975-81, though, there was no consistent trend: while real estate in California was booming, prices in Atlanta were falling. After 1981, Atlanta house prices increased a total of 5 percent (adjusted for inflation), Chicago prices fell 3 percent, Dallas home prices gained about 6 percent, and San Francisco homes appreciated less than 1 percent.

Case and Shiller's findings, based on a new index of home prices, are reported in **Prices of Single-Family Homes since 1970: New Indexes for Four Cities** (NBER Working Paper No. 2393). Using data on nearly one million homes sold in the four cities from 1970 to 1986, the authors construct a quarterly index of existing home prices. They use a weighted repeat sales method: that is, they focus only on homes that were sold more than once during the period. They

exclude from their sample properties that have been improved or that show a significant change in observed condition. In essence, they estimate the average appreciation in value of a well-maintained home in each city.

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Case and Shiller's figures are quite different from those published by the National Association of Realtors (NAR). Each quarter, the NAR calculates the median price of existing single-family homes in 54 metropolitan areas. However, this reported change in median sale prices includes changes in the size and characteristics of the homes sold that quarter. That is, if larger or newer homes are sold in the current period than in the previous three months, median prices will rise to reflect that shift in quality. Since they include changes in quality as well as changes in price, the NAR data are not a good measure of appreciation in the price of a “standard” home.

Case and Shiller's index rises more slowly than the realtors' data since 1981 in all cases except Chicago. This may be explained by the economic conditions in those cities. Total employment grew in Dallas, Atlanta, and San Francisco, but actually fell in Chicago. Similarly, real personal income grew about 20 percent in Dallas and Atlanta and 11 percent in San Francisco, but rose only 3 percent in Chicago.

Case and Shiller note that the market (or nominal) prices of homes rarely decline. However, after prices are adjusted for inflation, a number of prolonged periods of decline in (real) home values emerge: in Atlanta from 1973-8; Chicago from 1979-85; Dallas from 1972-6; and San Francisco from 1980-3.

Finally, Case and Shiller explain why it is so important to calculate housing values carefully. Owner-occupied housing is a very large portion of national wealth. According to the NAR, the 61.5 million single-family housing units had a mean price of \$86,000 in 1984. If that figure is correct, then the total value of the single-family housing stock was \$5.3 trillion. Total financial assets of the household sector amount to \$6.6 trillion. It can be argued that a full measure of national savings would include appreciation of house values. Then, based on the 1984 figures, even a 2 percent increase in the real value of owner-occupied housing represents over \$100 billion in private saving that is usually excluded from analyses of national saving and saving rates.

The Poverty of Widows

For older married women, the death of a husband triples the probability of living in poverty, according to a recent study by NBER Research Associates **Michael Hurd** and **David Wise**. When the husband dies, about 32 percent of wealth (other than housing) and most pensions disappear.

There are three explanations for that harsh reality. First, the households of poor widows earn and save less during the husbands' lives than other widows' households do. Second, of the little that they do accumulate, a larger share is lost when the husband dies. Finally, a lack of survivorship benefits or life insurance virtually guarantees that the widow will continue to be poor for the rest of her life.

In **The Wealth and Poverty of Widows: Assets Before and After the Husband's Death** (*NBER Working Paper No. 2325*), Hurd and Wise analyze the 1969–79 experience of a large group of households whose heads were born in 1905–11 (the Retirement History Survey). While only 9 percent of the prior couples are poor, 35 percent of the subsequent widows are poor. This poverty has several explanations.

For example, the median value of housing among the widows in the sample was \$12,000 as opposed to \$30,000 for the married couples. The households of the poor widows accumulated very little housing, so the possibility of their using a reverse annuity mortgage to increase their standard of living is very limited.

In terms of bequeathable wealth other than housing—including stocks and bonds, savings, and the like—the median for widows was less than \$6000 in 1979. That is, half of the widows had less than \$6000 in savings. The median for married couples that year was \$22,000.

Hurd and Wise find that households in which the husband died saved less than their counterparts did, but that those leaving behind poor widows saved much less. This suggests that "the early death of the husband was associated with considerably less savings out of earnings and that poverty of widows is partially explained by the failure to accumulate assets while the husband was living," the authors conclude.

Among the widows in 1979, average pension income was \$936; the average for married couples was \$2605. This discrepancy reflects the fact that many private pensions do not have survivorship rights. "The prior private pension wealth of poor widows was almost totally lost when the husband died," Hurd and Wise find.

Annuity wealth—the expected present value of future private pension benefits—dropped from \$9904 to \$1198 for the poor widows at the time of their husbands' deaths. They lost 88 percent of their annuity wealth at that time, while the other widows lost only 36 percent.

Also, Hurd and Wise find that in this sample the husbands who died had smaller pensions to begin with than the husbands who survived.

Hurd and Wise did not uncover much difference in life insurance coverage among the widows' households. Neither the poor widows nor the other widows were left much life insurance, and what they had was insufficient to make up for the loss in other types of wealth.

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The largest source of income for all the widows in this sample is Social Security. Moreover, differences in Social Security wealth—the expected present value of Social Security payments—are much smaller than the differences in other types of wealth are. Poor widows had 21 percent less Social Security wealth in 1969 and 22 percent less in 1975 than other widows had. These figures indicate that the lifetime earnings of the two groups of households were not very different. The implication is that "part of the cause of poverty is a failure to accumulate assets during the working life," Hurd and Wise conclude. They estimate that all widows' households earned 2–7 percent less (in wages) than the households where the husbands survived.

The authors test a number of reasonable explanations for the poverty of widows. For example, the lower lifetime saving of their households may be associated with poor health. Indeed, the poor widows come from families with less healthy husbands than those who are not poor. However, the data on doctor bills do not indicate that the poor widows had unusually high medical expenses.

Nor do Hurd and Wise find a relationship between the percentage of widows who are poor and the husbands' ages at death, or the number of years since the husbands' deaths.

Further, it does not appear that the widows' poverty can be explained by transfers to children (bequests). The authors find a greater loss of wealth in households without children than in those with children.

Moreover, while children in general provide limited support for their elderly parents, they do help their poor widowed mothers more than they help other parents. "Poor widows are more than twice as likely as poor married couples to receive support,"

Hurd and Wise find. Apparently, that support does not help much to alleviate the mothers' poverty.

Finally, Hurd and Wise note that the definition of the poverty level and what is counted as income can have a large effect on the proportion who are poor. If

housing services are included in the definition of income for the elderly, the incidence or total of poverty will not change much. But if Medicare/Medicaid benefits are counted as income, the fraction in poverty will drop substantially.

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