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Cooking the Books: The Cost to the Economy

CAROL GRAHAM, ROBERT E. LITAN, AND SANDIP SUKHTANKAR

On July 21, the telecommunications giant WorldCom filed the largest bankruptcy petition in U.S. history, which was almost twice the size of the next largest petition, filed by Enron in December 2001. Both bankruptcies resulted from corporate mismanagement, accounting malpractice, and symbolize the broader crisis in corporate govern-



A protestor outside Arthur Andersen's Manhattan offices.

nance—a crisis which involves top blue chip companies, has reached political leaders at the highest levels of government, and has resulted in high levels of volatility in U.S. stock markets.

In this brief, we provide a ballpark estimate of the costs to the economy, which we estimate will be approximately \$35 billion, or .34 percent, off of Gross Domestic Product (GDP), in the first year, assuming the market does not recover from its July 19 level or drop substantially below it. The total, which is calculated using the Federal Reserve Board's model of the U.S. economy, represents the range of what the federal government spends per year on homeland security or the increase in the cost of oil imports from a 38 percent (or \$10) increase in the per barrel price of crude oil.

The collapse of Enron was a shock when it was announced early in 2002, both because of the size of the enterprise and, more importantly, because its underlying cause was corrupt corporate management. Yet at the time it seemed an isolated, if unfortunate and costly event. Several months down the road, Enron has opened a deep and dark Pandora's box, the end of which seems nowhere in

sight. Since then, a surprising number of blue-chip companies, including WorldCom, Xerox, and Bristol Myers-Squibb, which for years were part and parcel of all that symbolized the seemingly endless expansion of the U.S. economy, have joined the unenviable ranks of scandal-plagued companies.

While Enron in isolation had a limited



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effect on the stock market, the combined effect of the subsequent scandals has driven the market into a downward tailspin, which seems impervious to the recent speeches by President Bush and Federal Reserve Chairman Greenspan and the unanimous Senate passage of accounting and corporate governance reform legislation. After falling steadily and sharply the preceding weeks, the Dow Jones Industrial Average (DJIA) plunged 440 points on July 15 and then recovered to close down 45 points, or 0.5 percent by the end of the day, closing at 8,639, far from its 10,635 peak in March 2002. The same day the dollar fell below parity with the Euro—with the Euro trading at \$1.0055—for the first time since the currency was issued, amidst increasing skepticism among foreign investors about U.S. markets.

Part of the problem stems from the public perception that the scandal is situated at the center rather than the periphery of the system. It hinges on companies misreporting their earnings, thereby skewing the price-earnings ratio, a measure which is at the core of most decisions investors make about where and when to invest. It has also reached actors at the highest levels of the political system. Not surprisingly, all of this has taken its toll on markets at home and abroad, and at the same time has reduced the relative advantages for investors worldwide of holding stock in U.S. companies.

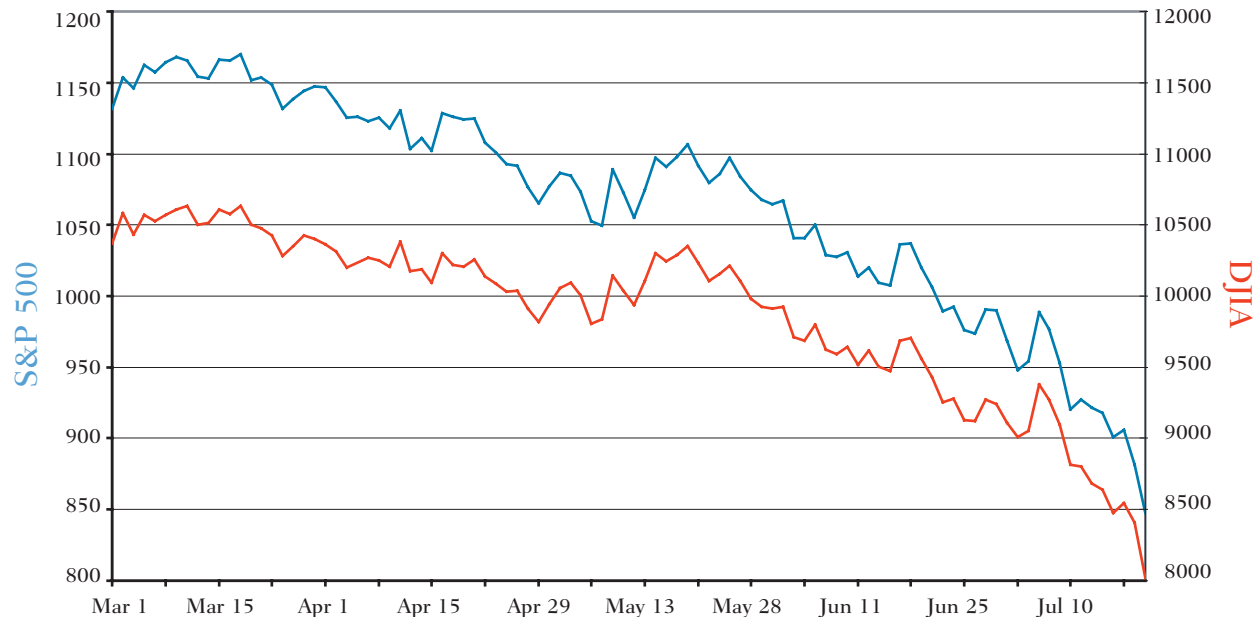
While much of the public debate on corporate governance has focused on the

inadequacy of accounting rules and their enforcement, there so far has been little study of the economic costs of the scandals. This is particularly important at a juncture in U.S. economic history when stock market wealth currently accounts for roughly one-third of household net worth. Almost 50 percent of U.S. households own some form of stock, as opposed to 37 percent in 1992 and 19 percent in 1962, and an increasing number of Americans rely on the stock market as a place to invest their retirement funds. While only 5 percent of retirement funds were placed in mutual funds in 1990, 21 percent of them were so invested in 2001. Mutual fund shares of 401(k) assets, meanwhile, were 44 percent of the total in 2001, compared to just 9 percent in 1990.

HOW MUCH DOES THE CRISIS COST?

Systematically measuring the economic costs of the crisis would require a complex analysis of the interaction of the effects of the stock market drops with a host of macroeconomic variables, as well as with actual and difficult-to-predict anticipated fiscal and monetary measures. While we are exploring an alternative analysis based on the differences between European, Japanese, and U.S. markets, for the purposes of this policy brief we opt for a simpler gauge of the costs of the crisis based solely on recent trends in the stock market.

We begin by looking at the drop in the market's value since its March 2002

Figure 1: S&P 500 and Dow Jones Industrial Average since March 2002

Source: Authors' calculations based on data from the S&P 500 and the Dow Jones Industrial Average: http://www.spglobal.com/index-main500_data.html and <http://www.djindexes.com/jsp/industrialAverages.jsp>.

peak. The Dow Jones has dropped by 25 percent since its March 19 peak, and almost 14 percent since its June 24 close, when a brief rally was interrupted by the news of WorldCom's \$3.9 billion earnings restatement. The Standard and Poor 500 index, closing at 848 on July 19, has lost a bit more: nearly 28 percent and 15 percent, respectively, since its March peak at 1170. In the absence of obvious causes of stock market decline—such as oil embargoes or the threat of an interest rate increase—we can assume that part of the drop in the stock market's value since March can be attributed to the Enron crisis, and a higher proportion of the drop since June can be attributed to WorldCom and subsequent scandals. Under a range of assumptions about the portions of the drop attributable to the crisis, based on trends in the S&P 500,

we attribute the following loss percentages in stock market wealth to the corporate scandals: 10% (low), 17% (base case), 24% (high).

Declines in stock value can adversely affect the economy in at least two ways. One is through the so-called “wealth effect” on consumption. As consumers feel poorer, they are likely to spend less. The second is through the impact of falling stock prices on the “equity premium” and thus on the cost of capital. Other things being equal, a lower stock market—especially one that is associated with more volatility—should drive up the cost of equity capital, and thus diminish investment. Similarly, investment can be dampened to the extent that firms expect lower consumption and more uncertainty,



Additional Reading

Kennickel, Arthur B., Martha Starr-McCluer, and Brian J. Surette, "Recent Changes in US Family Finances: Results from the 1998 Survey of Consumer Finances," *Federal Reserve Bulletin* (January 2000): 1-29.

"Mutual Funds and the U.S. Retirement Market in 2001," *Fundamentals: Investment Company Institute Research in Brief*, Vol. 11, No. 2, June 2002.

Poterba, James M., and Andrew A. Samwick, "Stock Ownership Patterns, Stock Market Fluctuations, and Consumption," *Brookings Papers on Economic Activity* (1995): 295-372

Reifschneider, David, Robert Tetlow, and John Williams, "Aggregate Disturbances, Monetary Policy, and the Macroeconomy: The FRB/US Perspective," *Federal Reserve Bulletin*, January 1999

both of which can and are likely to be associated with a drop in stock prices.

Translating changes in stock market wealth to effects on consumer expenditures is the subject of much debate among economists. An important issue, for example, is distinguishing the market's causal effect on consumer spending from its role as an indicator of future economic activity. While there is disagreement on the degree of causal effect, most analysts believe that there is at least some "wealth effect," although there is considerable uncertainty about its magnitude and timing.

Recognizing this uncertainty, we nonetheless adopt the Federal Reserve Board estimate, which suggests that over a period of twelve months, an extra dollar of stock market wealth increases spending an average of three and a half cents. Alternatively, each dollar decline reduces spending by 0.35 percent. This model assumes that the effects of the drop in stock market wealth are linear. In other words, regardless of the extent of the drop, the per dollar effect is the same. If the market drops a great deal further, the negative effects could be greater than we assume, as most holders of stock market wealth have a greater margin for reducing consumption than the average consumer, and might cut their spending even further. The Fed model assumes that investment would fall 0.8 percent per year in response to a 20 percent decline in stock market wealth. While this assumption does not account for adjustment costs and

other feedback effects on investment, the overall model that calculates the combined effects of all the variables on GDP does.

Using our three sets of assumptions about the percentage decline in stock market wealth that can be attributed to Enron and subsequent accounting episodes, the Fed's model suggests that if stocks stay at their July 19 levels and without offsetting fiscal or monetary stimulus, GDP would be reduced (because of a drop in both consumption and investment) by between .2 and .48 percent (between \$21 and \$50 billion off current GDP) over a one-year period, between .40 and .95 percent after two years, between .50 and 1.19 percent at the end of three years, and between 1.05 and 2.50 percent over a ten-year period. These estimates do not take into account possible longer term supply-side disturbances—those that affect prices or production—related to the collapse of several large companies. Of course, should the market turn around—and eventually it should and will—these adverse effects will be reversed. But for now, the estimates suggest that the cumulative impact of the scandals on GDP is significant.

MARKET TRENDS WITHOUT THE CRISIS

What would have happened to stocks had the accounting scandals not occurred? Although making market projections is a hazardous exercise under the best circumstances, it is useful to look at credible,

pre-scandal projections as a way of checking the estimates based only on the actual stock price drop over the past three months. In fact, credible predictions of stock market trends made in January 2002, pre-Enron, and June 2002, pre-WorldCom, were already anticipating a sluggish market, but not the impact of the accounting scandal.

At the start of this year, *USA Today* polled Wall Street investment strategists from leading securities firms to learn their forecasts of the S&P 500 for 2002. When the poll was taken, one would have expected these analysts to factor in the effects of September 11, the economic recovery, and the Enron bankruptcy case into their forecasts, while not knowing about the full extent of the accounting scandal, as the Arthur Andersen shredding news had not broken.

Adjusting for the fact that these predictions were for the full year, and we are at mid-year, the average prediction of the value of the S&P 500 was 1216, a 6 percent increase from the 2001 year-end value of 1148. The July 19 close of 848 was 368 points, or 30 percent, lower than the mean prediction. If we attribute that 30, 60, or 90 percent of the difference between the pre-scandal predictions and the actual trends to the scandals, and apply the coefficients from the Fed's model, the scandal-related costs would be between -.18 to -.55 percent of GDP—or between \$19 and \$57 billion in the first year.

It is impossible to predict how much further the market will fall, and how long it will stay down. Our projections are made during a time of high market volatility, and so we propose two estimates of the costs of the scandal: a more pessimistic view assumes that the market stays as low as its July 22 close—820 for the S&P 500—for a prolonged period of time. In this case, our estimate for the change in GDP using our base case assumption is -.37 percent, or \$39 billion, in the first year. Our more optimistic view, based on the S&P's close at 903 on July 30, estimates that the effect would be -.27 percent, or \$28 billion.

In addition to what the Fed model has already assumed about the effects of the stock market decline on investment, there may be investment-related trends whose origin is independent of the corporate scandals but still affect the economy. Currently, investment is suffering from what economists at the Goldman Sachs group call the “paradox of corporate thrift”—when business investment lags behind other activity in the recovery as firms wait to ensure that any new capacity is taken up. Given earlier over-investment, firms today are controlling costs. Goldman forecasts a 6 percent drop in business investment this year and a modest 5 percent increase next year. The paradox

Closer To Home: Gauging the Impact of the Scandals on a Typical Retirement Portfolio

While the market will eventually turn around, allowing younger consumers to recover some of their earnings, the downturn has the most direct effects for those who are near or at retirement age.

Consumer: Washington metropolitan area retiree

Salary in 2001: \$66,888 (median income for the region)

Retirement plan: 401K, S&P 500 index fund

Contribution: 7 percent of annual salary, 3 percent employer match

Contributing since: 1990

Value of 401K if cashed out in December 1999:

\$149,371, with a contribution of \$52,166 and a gain of \$97,205.

Value of 401K if cashed out on July 1, 2002:

\$117,814, with a contribution of \$68,765 and a gain of only \$49,049.

Source: Greater Washington Board of Trade, cited in *Washington Post*, 7/17/02



Table 1: Largest One-Day (“V-Shaped”) DJIA Drops Over Past Half-Century

Date of Drop	% Decline	Weeks to recovery
Sept. 17, 2001	-7.13	4
April 14, 2000	-5.66	2
Aug. 31, 1998	-6.37	2.5
Oct. 27, 1997	-7.18	3.5
Oct. 12, 1989	-6.91	8.5
Jan. 8, 1988	-6.85	7
Oct. 26, 1987	-8.04	1
Oct. 19, 1987	-22.61	66
May 28, 1962	-5.71	1
Sept. 26, 1955	-6.54	10
Average	-8.30	10.6
Average without 10/19/87	-6.71	4.4

Source: Authors' calculations using data from <http://www.djindexes.com/jsp/IndustrialAverages.jsp>

is that if enough firms cut costs, it can become pervasive enough to undermine the predicted economic expansion. Confidence in predictions of future consumer demand play a role in determining how much companies are willing to invest, and the uncertain environment created by the declining market and the crisis in corporate governance could serve as a negative feedback loop in the process.

Moreover, the corporate governance crisis almost certainly has discouraged foreign investment into the United States, which has manifested itself in, among other things, a decline in the value of the dollar. For example, between March 19 and July 19,

the trade-weighted value of the dollar fell by 5.2 percent. The drop in the dollar is not unwelcome, however. Although a lower dollar pushes up the price of imports and domestically produced goods that compete with imports, the underlying rate of inflation has been low, so any crisis-induced inflationary impact is unlikely to induce the Fed to raise interest rates any time soon (on the other hand, the demand-depressing impact of the crisis may cause the Fed to lower interest rates). Furthermore, a lower dollar will encourage foreigners to buy more U.S. exports, which should offset at least some of the negative effects of the crisis on consumption and investment, while bringing down the current account

deficit that has soared to more than 4 percent of GDP.

RESTORING CONFIDENCE

Our assumptions about the costs of the scandal suggest that the economic price will be fairly large and may last for a prolonged period of time. An important question is how long it will take to restore confidence and reverse the downward trend. This is difficult to answer given that we do not yet know the full extent of the scandals. Yet we can use historical evidence to estimate how long it takes for the market to recover from major downturns.

An important distinction here is between the market's ability to recover from what we call “V-shaped” downturns—those generated by one-shot steep declines, such as October 1987, October 1989, and September 11, 2001—and those we call “drip-drip” downturns: step-by-step declines that occur over a prolonged period of time, such as in the 1970s, and which seems to be happening now. As tables 1 and 2 demonstrate, it took an average of eleven weeks for the market to recover (its nominal value) from one-day drops, but four years to recover from the “drip-drip” downturns.

To be sure, the worst “drip-drip” downturn of the post-World War II era—the one that began in 1973—was associated with “stagflation” (high inflation and unemployment) that is not present today. Nonetheless, the current market

This policy brief, and the longer paper (<http://www.brookings.edu/views/papers/graham/20020722.htm>), aim to further the discussion and research on this topic. The authors welcome comments and alternative approaches for assessing the costs of the corporate scandals.

downturn has unique worrisome characteristics of its own: a fundamental loss in public confidence in both the principal measure of company performance and in corporate—and political—leadership. Indeed, the market failed to turn up after two major economic addresses by President Bush, the unanimous Senate approval of the reform legislation to overhaul the regulation of corporate governance, and, most importantly, an upbeat speech on the economy by Federal Reserve Board Chairman Alan Greenspan. Generally, the market turns up prior to economic recoveries, serving as a leading indicator. In this case, the recovery that seems to be underway could be slowed by the exogenous effects of the scandal on the market.

In short, investors want more than words. They want earnings figures they can trust and evidence that those figures are rising. Continued economic recovery should produce rising earnings, but restoring confidence in the reported numbers—whatever their true underlying values—is another matter. Investors are likely to take a “wait and see” attitude toward the reforms that have been or are likely to be adopted. If the past record on “drip-drip” stock price downturns is any guide, the required period is likely to be at least a year, and perhaps substantially longer than that.

EFFECTS BEYOND OUR BORDERS

A final effect of the current crisis in confidence, which is harder to measure

Table 2: Largest “Drip-Drip” DJIA Declines Over Past Half-Century

Date of peak	% Decline	Months to return	
		Trough	to last peak
July 16, 1990	-21.2	3	0.75
Aug. 25, 1987	-36.1	2	2
April 27, 1981	-24.1	16	1.5
Sept. 21, 1976	-26.9	17	4.5
Jan. 11, 1973	-45.1	23	9.8
Dec. 3, 1968	-35.9	18	3.9
Feb. 9, 1966	-25.2	8	6.8
Dec. 13, 1961	-27.1	6	1.75
Average	-30.2	11.6	3.9

Source: Adapted from Greg Ip, “Bear or Correction? Wall Street Debates Whether Stock Market Now Has Claws,” *Wall Street Journal*, 9/3/98.

and has so far received virtually no public attention, is that on the commitment to market-based economic institutions and reforms elsewhere around the world. Numerous developing countries around the globe, and most notably in the Western hemisphere, have turned to the market in recent years. The United States, in particular, has for the most part served as a model of an efficient and effective market economy. Until recently, U.S. accounting and other corporate management standards served as a gold standard for many developing economies, and our stock market as the best example of a developed equity market.

Yet in recent months, the turn to the market has also met increasing public frustration in these countries, due to mixed results in some of them and to sharp economic downturns exacerbated by fluctuations in international financial markets—with Argentina being the most extreme case. There is a more general public questioning of the market, of free trade, and of the wide scale privatization

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of pension funds that many countries have undertaken. More worrisome, these trends are coupled with the recent reality of Argentina defaulting on its sovereign debt and with warnings of a possible default by Brazil, a default that in the end could be driven by lack of confidence in emerging market equities. Deeper downturns in the developing economies will, in the longer run, contribute to the costs to the U.S. economy.

CONCLUSION

Assuming the market stays down for a prolonged period of time, the crisis in corporate governance is likely to have sizable costs for the economy. The estimates we present here will be greater if the market drops well below its July 19 levels or lesser if the market rises above these levels. The Commerce

Department’s latest figures show that the economy’s second quarter growth was much lower than the 2.2 percent increase in GDP that Wall Street had forecasted. Our estimates of the costs of the scandals are much more conservative than what these new figures may suggest. While wealthy corporate executives incurred the costs, consumers will pay the price.

The price—in both real dollars and consumer confidence—already has given policymakers impetus to enact new reforms in accounting and corporate governance. The question now is how soon investors will again have enough confidence in the corporate information system to come back to stocks and thus ensure that the cost so far suffered will be short-lived. B

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