

An Actuarial Audit



Would Have Prevented the Enron Disaster

By Fred Kilbourne

Probably. Well, maybe. Or at least partially. But with a disaster of this scope, even “maybe or partially” is worth exploring. I sense you have questions, so let me explain.

What Enron disaster?

At the recent turn of the century, Enron was, by several measures, one of the 10 largest corporations in America. Its auditor, Arthur Andersen, was the largest audit/consulting firm in the country. In 2001 Enron collapsed, for reasons discussed below, taking Andersen with it and causing the loss of tens of thousands of jobs. It was the largest bankruptcy in U.S. history, at the time, and cost investors and employees tens of billions of dollars in both paper profits and real money. It was a disaster.

What is an actuarial audit?

That simple and straightforward question deserves a simple and straightforward answer, notwithstanding the complexities of follow-up questions and answers. An actuarial audit is the independent and expert search for the real value, discussed below, of a share of the subject company's common stock. It's a major undertaking, an investigation and analysis of corporate finances and prospects that is essentially unconcerned with market price, quarterly earnings, and price/earnings ratios. The actuarial audit team usually is led by an actuary, with substantial participation by other independent experts and knowledgeable company personnel.

What is an actuary?

The actuary has been called the architect of financial security programs. He or she has also been described as a mathematician trained in evaluating the current financial implications of future contingent events. I once actually incorporated my small actu-

By evaluating the financial implications of future contingent events, an actuary would have been able to spot the fatal weakness in Enron's doomed house of cards.

arial firm as *Future Cost Analysts*, a name that was clearly more descriptive of our services than melodious to the ear.

Most U.S. actuaries, though not all, are members of the American Academy of Actuaries, an umbrella organization for other organizations including the Society of Actuaries and the Casualty Actuarial Society. Most actuaries work with insurance (life, health, property, casualty), employee benefits (pensions, health plans), or finance (corporate, public).

What's the difference between an actuary and an accountant?

The actuary and the accountant share several attributes. Both are concerned with counting beans, and financial statements, and money. Both are professionals who are subject to the standards of their respective professions, as well as to compliance with government laws and regulations. But there are also significant differences.

The actuary's professional interest in the past, and even in the present, lies in what those two spans of time (one very long, the other very short) can tell us about the future. If your issue doesn't involve both money and the future, don't call on an actuary. The future, of course, is an uncertain place, but the actuary is comfortable with uncertainty.

The accountant is not. Faced with uncertainty, the accountant prefers to call upon the actuary, or other appraiser, and then to attest to the certainty that the appraiser has rendered a specific opinion, preferably to the penny (one unkind actuary even complains that accountants would rather be precisely wrong than approximately correct).

The future, however, is an unruly child, influenced by his parents (the past and the present) but often willful and even perverse. The future can be predicted, but it cannot be foretold.

Are actuaries experts in energy trading and structured finance?

Good question, as those appear to have made up most of Enron's business. The answers are "no" and "yes, in a way."

I know of no actuaries who are experts in energy trading. I know of many who are expert in structured finance, broadly construed to include complex financial arrangements that are designed for the purpose of transferring risk, minimizing taxation, or dealing laboriously but painlessly with laws and regulations.

Reinsurance, whereby one insurer insures another, is a complex financial arrangement that's usually structured by an actuary. Structured finance has gotten bad press lately, thanks to Enron and others. But as with many things in business and politics and life, it can be legal or illegal, ethical or unethical, good or bad. The actuarial audit, however, doesn't require the actuary to be expert in structured finance or energy trading or any of the client's businesses. Such experts may well be needed on the actuarial audit team, but the actuary's job is merely to be expert in solving The Actuarial Equation.

What is The Actuarial Equation?

The Actuarial Equation is $X=QAV$, where X is the value (cost or benefit) that is sought, Q is the probability that a future contingent event will occur, A is the cost (or benefit) to be realized should the event occur, and V is a factor (reflective of risk and the time value of money) to bring the action to the present (the only place we can actually act).

Consider the premium needed for a \$100 policy ($A=\100) of life insurance for one year, payable at the end of the year, on a person with a 10 percent chance of dying this year ($Q=10\%$), in a year of rampant but known inflation such that invested funds will surely double in a year ($V=1/2$). The Actuarial Equation yields the needed premium of \$5. (Life insurance actuarial work is often more complicated than this.)

More germane to the actuarial audit, consider a share of common stock whose value (X) consists solely of the chance to win a \$2 million lawsuit two years hence, where there are 1,000 shares outstanding (so $A=\$2,000$) and the suit is to be decided by the toss of a (fair) coin (so $Q=50\%$), and under the same rampant but known inflation as in the previous example (so $V=1/4$). The value of that share is \$250 and the actuarial audit is complete. (It's usually more complicated than this.)

What caused the Enron disaster?

There are multiple answers to this question, several with elements of truth. The seeds of the disaster may have germinated with the 1997 birth of Chewco Investments, a confidential off-book partnership created to hide \$600 million of Enron debt from stock analysts and ordinary investors. Nourishment was added in 1999 with the creation of a Cayman Islands partnership, also confidential and off-book, and this time financed with

Enron stock, to convert \$300 million of paper profits in Rhythms Net Connections into Enron earnings.

The disaster burst into full flower in 2001 when Enron stock fell below \$20 per share, triggering huge losses due to structured financial arrangements involving Raptor hedges and LJM, another confidential and off-book partnership.

It took people to develop and carry out these schemes, of course, and the disaster, now an orphan, had many parents. Andrew Fastow, Enron's chief financial officer and resident entrepreneur, set up and ran the partnerships (L, J, and M are the initials of the first names of his wife and two children). Jeffrey Skilling, Enron's president and Fastow's patron, allegedly transferred Enron's naysaying risk manager to a position where his nays would not impede the partnership juggernaut.

Enron's board of directors, 18 otherwise-distinguished individuals, waived the company's code of ethics to permit Fastow to run LJM while he was Enron's CFO, the conflict of interest notwithstanding. David Duncan, Arthur Andersen's partner in charge of the massive Enron account (over \$1 million in fees per week, at its peak), effectively overruled the firm's Professional Services Group's opposition to "high-risk" accounting at Enron which allowed arbitrary and unsupported estimates of future profits to be booked as current income.

Arguably, the impetus for all this malfeasance or negligence was provided by the greed of the 1980s, leavened with the corruption of the 1990s. Inarguably, the price/earnings ratio game underlay in large measure the Enron disaster, in that the fair price for a share of stock is presumed to be some knowable multiple of the alleged (i.e., booked) earnings of the last quarter. The real value of that share of stock—the goal of the actuarial audit—isn't a function of such short-term earnings, not even of discerned trends therein, especially when it's so much easier for greed and corruption to work their tragic magic one quarter at a time.

So what is the real value of a share of common stock?

The first step to answer this question directly is to finesse market value concerns by considering the share itself, without worrying about its succession of owners. The next step is to set aside (for our purpose, not the actuarial audit as such) all the complications and exceptions that make life worthwhile (and affordable) for accountants, actuaries, and lawyers. The result is a straightforward definition of real value as the proportionate share of the company's liquidating value, plus the present value of its future net income.

An even simpler, but equivalent, definition of real value is the present value of future dividends, if we assume that the only income to the share is dividend income (tax complications aside), including even an ultimate liquidation dividend. The liquidating value of the company is the book value of a good and honest accounting audit, adjusted to debit contingent debts (e.g., Raptor hedge losses if Enron's stock dropped below \$20 per share) and to credit unrecognized net worth (e.g., due to

conservatism in GAAP accounting).

The present value of future net income (i.e., real earnings) is where the bulk of the analysis of the actuarial audit comes in (especially when those complications and exceptions are let back into the picture). Important to note, however, is that income and outgo must be analyzed and estimated indefinitely into the future (although the discounting process does effectively eliminate concerns about prospective earnings of the next century and beyond).

I once had occasion to place a substantial value on a company with recent losses that were expected to continue but that were due, I thought, to costs associated with starting a venture that showed great promise of substantial earnings 10 and 20 years down the road. The opposing expert, an accountant, did look ahead, but only five years and then testified that the view beyond that time was so foggy as to permit only conjecture (that dreaded uncertainty!) and that the company therefore had no value.

The key to a good actuarial audit is to bring to bear all necessary expertise (including that of accountants) to analyze thoroughly the elements of prospective earnings of future years. The essence of the actuary's job is to synthesize the results of the other experts' analyses, to quantify the results, and to select discount rates (for present-value purposes) that fully reflect the time value of money, the potential risks and rewards ahead, and all the uncertainties in the audit process.

The result is the real (intrinsic) value of that share of stock to the best of the ability of the actuarial audit team. The market would probably price the share at the same value if it had access to the same information used by the actuary, and if it discounted the disinformation swirling around the alleged earnings of the most recent quarter.

Why have I never heard of an actuarial audit?

You've been busy. That's probably why you missed my 1986 article, in the U.S. edition of *Chief Financial Officer International*, published in London, wherein I proposed "an independent actuarial audit of corporate financial statements."

Others have also suggested, before and since, that actuaries can conduct or participate in audits, or that audits should be forward-looking, with attention to risk and reward and attendant uncertainties. In fact, actuaries have long been used in a supporting role by auditors, to estimate the reserves needed by insurance companies or the pension plan liabilities of companies with a defined benefit pension plan. And insurance actuaries increasingly are called upon to analyze the real balance sheet and beyond, and to report directly to the board of directors as their appointed actuary.

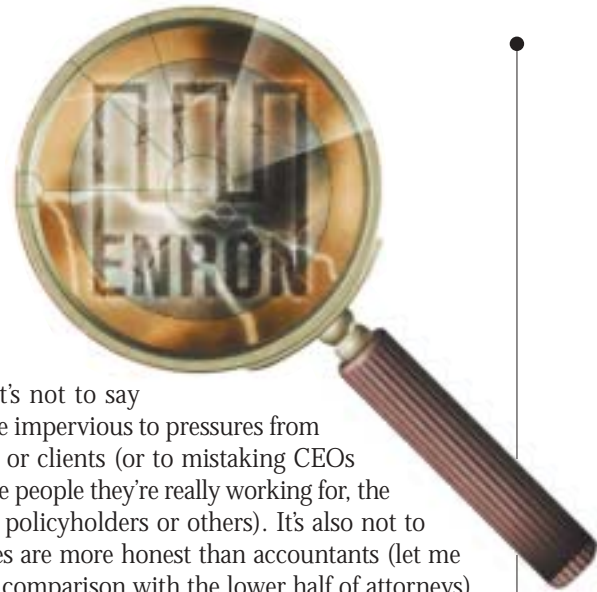
But our concern here is with the forward-looking actuarial audit, and with the independent and objective analysis of potential risks and rewards, and how they affect future earnings. Once those are known (estimated), their impact on present value can be determined (discounted) and the result added to (adjusted) book value to yield the real value of the subject share of stock.

Would an actuarial audit have prevented the Enron disaster?

I think so. That's not to say that actuaries are impervious to pressures from their employers or clients (or to mistaking CEOs and CFOs for the people they're really working for, the shareholders or policyholders or others). It's also not to say that actuaries are more honest than accountants (let me think about the comparison with the lower half of attorneys).

I knew two actuaries who succumbed to pressure from their bosses, based on "temporarily" adverse quarterly earnings, by inventing phantom policyholders in order to maintain revenue growth (they sold the phantom policies to an unsuspecting reinsurer in a structured financing deal). They were even "good" enough actuaries to realize, after they'd given birth to thousands of imaginary policyholders, that some of them must die, to keep pace with the mortality tables. They both went to jail, as did their bosses and the auditors, and they were (belatedly) thrown out of the actuarial profession.

But the reason I think an actuarial audit would have pre-



1/4
Stewart Search
Page 23

The cost of an
actuarial audit is
substantial, but its
emphasis on the long run
means it need be done
only once every
several years.

vented or lessened the Enron disaster has less to do with actuaries as such than it does with what actuaries are all about, with the actuary's training and experience, with the actuarial mindset.

Recall that actuaries are focused on money and the future, on estimations and uncertainties, on the risks and rewards in the road ahead. The structured financing arrangements that ultimately were the downfall of Enron would have been poked and prodded and subjected to all manner of scenario testing in an actuarial audit.

Consider Chewco, the partnership set up to hide \$600 million of Enron debt. Accounting rules permitted Chewco to be considered independent of Enron, effectively hiding the debt, with as little as 3 percent of partnership equity provided by outside investors. The actuarial audit has no such escape clause, and the impact of both Chewco and the debt on future long-term Enron earnings would have been analyzed and quantified, pitfalls and promises alike. At least some of the scenarios in that analysis would have pointed to Chewco as a debacle in the making, and an alarm would have sounded.

Consider next Rhythms Net Connections, the temporarily high-flying Internet company whose \$300 million of unrealized capital gains were "realized" as Enron earnings by means of a structured financial deal supported by Enron stock. Any good reinsurance actuary would have seen through this bootstrap scheme, as did Vince Kaminski, Enron's in-house risk manager (first cousin, professionally, to an actuary). Skilling allegedly transferred Kaminski out of the way, but he might not have been able to deal so efficiently with an independent actuarial auditor who reported directly to the board (or to the authorities).

Next, consider the mark-to-market accounting whereby unrealized (and highly conjectural) capital gains were converted into Enron earnings based on future profit estimates by Enron insiders. Those future profit estimates would have become the responsibility of the actuary, an independent and expert outsider.

Finally, consider the Raptor hedges and the role of the Sept. 11 terrorists in exposing the Enron house of cards. Enron had (early) reported more than \$1 billion of (highly contingent) profits through the vehicle of the LJM partnership, using so-called Raptor hedges (others in this secret class of deals included Backbone and Rawhide). Support for the whole contraption was provided by Enron's pledging 30 million shares of its stock, priced by the market (I hesitate to say "worth") at about \$2 billion when the deals were struck.

Throughout most of 2001, however, Enron's stock price continued to decline, dropping precipitously in the week after Sept. 11 to below \$30 per share. Within a month the price had dropped below \$20 per share. This was the point at which En-

ron didn't have enough shares available to support its pledge, so the Raptor deal fell apart.

In the heady days when Enron stock was \$50 then \$60 then \$70 per share and heading higher, contingent events based on prices below \$20 per share probably seemed unlikely and remote. But the actuary's daily life is filled with potential events that are unlikely and remote (Q is small) and with the analysis and estimation of the cost if the event occurs (A may be large). No actuary would have failed to recognize the \$20 trigger, nor to have seen the size of the cost had the shot been fired (assuming access to information about the Raptor deals).

I worked on an analogous though smaller house of cards several years ago, for the liquidator of a specialty insurer that went broke insuring savings accounts. The defendant was a large audit firm whose audit team included lots of good accountants, but nobody at all well-versed in the potential costs of future contingent events. The case settled out of court for a nine-figure amount.

I do believe that a timely actuarial audit, as briefly sketched in this article, would have prevented or lessened the Enron disaster. The cost of an actuarial audit is substantial, probing as it must into everything the company is doing or plans to do, but its emphasis on the long run probably means it need be done only once every several years.

The actuarial audit may even hold promise to (once again) save capitalism from itself. Consider the young up-and-coming corporate executive who's motivated by greed, with corruption an option. If he or she knows that his or her greed will be satisfied by an increase in stock price that's based on book earnings of the next quarter, he or she may turn to corruption. If, on the other hand, he or she knows that that same greed will be satisfied by an increase in stock price that's based on an actuarial audit, he or she may turn his or her attention to long-term earnings, thereby improving the real value of the stock and the lot of the investor who holds it.

It can even be argued, plausibly, that the consumer, the buyer of the company's product, will benefit. This follows, since the best way to improve long-term earnings is to build a loyal clientele by producing a quality product at a reasonable price. Thus it is that regular use of actuarial audits will not only prevent Enron-like disasters but also save society from the ravages of alternatives to capitalism. ●

FRED KILBOURNE IS A CONSULTING ACTUARY WITH THE KILBOURNE COMPANY, INDEPENDENT ACTUARIAL CONSULTANTS IN SAN DIEGO. HE IS A MEMBER OF THE *CONTINGENCIES* EDITORIAL ADVISORY BOARD.