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**Krishna G. Palepu
Paul M. Healy**

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Paul M. Healy and Krishna G. Palepu

Paul M. Healy is the James R. Williston Professor of Business Administration and Krishna G. Palepu is the Ross Graham Walker Professor of Business Administration, both at Harvard Business School, Boston, Massachusetts. Email addresses:

phealy@hbs.edu, and kpalepu@hbs.edu

From the start of the 1990s until year-end 1998, Enron's stock rose by 311% percent, a modest increase over the rate of growth in the Standard & Poor 500. But then the stock soared. It increased by 56% in 1999 and a further 87% in 2000, compared to a 20% increase and a 10% decline for the index during the same years. By December 31, 2000, Enron's stock was priced at \$83.13 and its market capitalization exceeded \$60 billion, 70 times earnings and six times book value, an indication of the stock market's high expectations about its future prospects. In addition, Enron was rated the most innovative large company in America in Fortune's Most Admired Companies survey. Yet within a year, its image was in tatters and its stock price had plummeted nearly to zero. Exhibit 1 lists some of the critical events for Enron between August and December 2001 – a saga of document shredding, restatements of earnings, regulatory investigations, a failed merger, and the company filing for bankruptcy.

We will assess how governance and incentive problems contributed to Enron's rise and fall. A well-functioning capital market creates appropriate linkages of information, incentives, and governance between managers and investors. This process is supposed to be carried out through a network of intermediaries, as presented in Exhibit 2, that include professional investors such as banks, mutual funds, insurance, and venture capital firms; information analyzers such as financial analysts and ratings agencies; assurance professionals such as external auditors; and internal governance agents such as corporate boards. These parties, who are themselves subject to incentive and governance problems, are regulated by a variety of institutions: the Securities and Exchange Commission, bank regulators, and private sector bodies such the Financial Accounting Standards Board, the American Institute of Certified Public Accountants, and stock exchanges.

We show that despite this elaborate corporate governance and intermediation network, Enron was able to attract large sums of capital to fund a questionable business model, conceal its true performance through a series of accounting and financing maneuvers, and hype its stock to unsustainable levels. While Enron presents an extreme example, it is also a useful test case for potential weaknesses in the U.S. capital market system. We believe that the problems of governance and incentives that emerged at Enron can also surface at many other firms, and may potentially affect the entire capital market. We will begin by discussing the evolution of Enron's business model in the late 1990s, the stresses that this business model created for Enron's financial reporting, and how key capital market intermediaries played a role in the company's rise and fall.

Enron's Business

Kenneth Lay founded Enron in 1985 through the merger of Houston Natural Gas and Internorth, two natural gas pipeline companies.¹ The merged company owned 37,000 miles of intra- and interstate pipelines for transporting natural gas between producers and utilities. In the early 1980s, most contracts between natural gas producers and pipelines were "take-or-pay" contracts, where pipelines agreed to pay for a minimum volume of gas in the future at prearranged prices that were typically fixed over the contract life or increased with inflation.² Pipelines, in turn, had similar long-term contracts with local gas distribution companies, or electric utilities, to purchase gas from them. These contracts assured long-term stability in supply and prices of natural gas.

¹ Sources for information on Enron's business include Enron annual reports and 10-Ks for the period 1990-2000, and Tufano (1994), Salter, Levesque, and Ciampa (2002).

² Take or pay contracts require the buyer to either purchase a pre-determined quantity at a given price, or be liable to pay the equivalent amount in case of failure to honor that contract.

However, changes in the regulation of the natural gas market during the mid-1980s, which deregulated prices and permitted more flexible arrangements between producers and pipelines, led to an increased use of spot market transactions. By 1990, 75 percent of gas sales were transacted at spot prices rather than through long-term contracts. Enron, which owned the largest interstate network of pipelines, profited from the increased gas supply and flexibility resulting from the regulatory changes. Its returns on beginning equity in the years 1987 to 1990, when it was primarily a pipeline business, were 14.2, 13.0, 15.9 and 13.1 percent respectively, compared with an estimated equity cost of capital of around 13 percent.³

In an attempt to achieve further growth, Enron pursued a diversification strategy. It began by reaching beyond its pipeline business to become involved in natural gas trading. It extended the natural gas model to become a financial trader and market maker in electric power, coal, steel, paper and pulp, water, and broadband fiber optic cable capacity. It undertook international projects involving construction and management of energy facilities. By 2001, Enron had become a conglomerate that owned and operated gas pipelines, electricity plants, pulp and paper plants, broadband assets, and water plants internationally, and traded extensively in financial markets for the same products and services. A summary of segment results for the company, in Exhibit 3, shows how dramatically the domestic trading and international business grew during the late 1990s.⁴

³ This estimate is based on the average 30-year government bond rate for the period of 8.65 percent, a market risk premium of 7 percent, and an equity beta of 0.6. The cost of equity capital is calculated using the capital asset pricing model: $8.65\% + 0.6 \times 7\% = 12.85\%$

⁴ It is difficult to figure out which parts of Enron's business model were working and which were not, since the company provided minimal segment disclosure. In addition, its 2000 domestic trading performance was affected by the California energy crisis, where illegal price manipulation by Enron and others is being investigated.

This growth impressed the capital markets, and few asked fundamental questions about the company's business strategy. Could Enron's expertise in owning and managing energy assets, and then developing a trading model to help buyers and sellers of energy manage risks, be extended to such a broad array of new businesses? Moreover, was its performance sustainable given the limited barriers to entry by other firms that wished to mimic its success? To have a sense of how Enron's business model evolved, it's useful to consider in more detail how its operations expanded.

From Regulated Industry to Energy Trading

Jeff Skilling, who subsequently became Enron's CEO in August 2001, envisioned Enron's trading model during a 1988 McKinsey engagement at Enron. While deregulation generally led to lower prices and increased supply, it also introduced increased volatility in gas prices. Further, the standard contract in this market allowed suppliers to interrupt gas supply without legal penalties. By creating a natural gas "bank," Skilling foresaw that Enron could help both buyers and suppliers manage these risks effectively. The "gas bank" would act just as a financial banking institution, except that it would intermediate between suppliers and buyers of natural gas. Enron began offering utilities long-term fixed price contracts for natural gas, typically at prices that assumed long-term declines in spot prices.

To ensure delivery of these contracts and to reduce exposure to fluctuations in spot prices, Enron entered into long-term fixed price arrangements with producers, and used financial derivatives, including swaps, forward and future contracts.⁵ It also began

⁵ A swap is a transaction that exchanges one security for another with different characteristics. A forward contract is for the purchase or sale of a specific quantity of a good at the current (spot) price, but with

using off-balance sheet financing vehicles, known as Special Purpose Entities, to finance many of these transactions.

By all accounts, the gas trading business was a huge success. By 1992, Enron was the largest merchant of natural gas in North America, and the gas trading business became the second largest contributor to Enron's net income, with an Earnings Before Interest and Taxes of \$122 million. The creation of the online trading model, EnronOnline, in November 1999 enabled the company to further develop and extend its abilities to negotiate and manage these financial contracts. By the fourth quarter of 2000, EnronOnline accounted for almost half of Enron's transactions for all of its business units, and had enabled transactions per commercial person to grow to 3,084 from 672 in 1999.

In the late 1990s, Skilling refined the trading model further. He noted that "heavy" assets, such as pipelines, were not a source of competitive advantage that would enable Enron to earn economic rents. Skilling argued that the key to dominating the trading market was information; Enron should, therefore, only hold "heavy" assets if they were useful for generating information. Consequently, the company began divesting "heavy" assets, and pursuing an "asset light" strategy. As a result of this strategy, by late 2000, Enron owned 5,000 fewer miles of natural gas pipeline than when the company was founded in 1985 -- but its gas financial transactions represented 20 times its pipeline capacity.

Through its extensive network of pipelines, Enron was initially well-positioned to intermediate between producers and utilities. The company had expertise in managing the physical logistics of delivering gas to customers through its pipelines. It quickly

payment and delivery at a specified future date. A futures contract is an agreement to buy a specified

developed expertise in managing the trading business risks. These risks included exposure to general gas spot market volatility, exposure to gas price fluctuations at particular production and delivery locations (since gas cannot be transported costlessly from one location to another), exposure to reserve risks (since Enron had to ensure that it would have sufficient gas reserves to be able to meet its commitments to utilities), and the risk that counterparties in its derivative transactions would default.

However, whether the company could expect to continue to earn high returns from gas trading was unclear. Skilling believed that the major barrier to entry in gas trading was Enron's market knowledge achieved through its dominant market position. However, many other firms were well positioned to challenge Enron's dominance, including large gas producers, such as Mobil, gas marketers such as Coastal and Clearinghouse, and financial firms such as Phibro, AIG, Chase and Citibank. In comparable markets, early rents to first-movers had quickly dissipated as competitors entered. For example, in the interest rate swap market, margins declined tenfold during the 1990s.⁶ The Internet provided a low-cost platform for existing or potential competitors to develop energy markets that could compete with EnronOnline.

Extending the Natural Gas Trading Model

In the mid-1990s, Enron began extending its gas trading model to other markets. It sought markets with certain characteristics: the markets were fragmented, with complex distribution systems, the commodity was fungible, and pricing was opaque.

quantity of a good at a particular price on a specified future date.

⁶ In the interest rate swap market, two parties agree to make payments to each other based on a notional (or imaginary) quantity of principal. The payments by the two parties are based on different interest rates. For example, one party might make payments based on a fixed interest rate while the other makes a payment

Markets identified as targets included electric power, coal, steel, paper and pulp, water, and broadband cable capacity. Enron's model was to acquire physical capacity in each market, and then leverage that investment through the creation of more flexible pricing structures for market participants, using financial derivatives as a way of managing risks. Enron argued that the systems and expertise it had acquired in gas trading could be leveraged to the new markets. The trading model therefore was touted as a way for Enron to continue to grow spectacularly as it diversified from a pure energy firm into a broad-based financial services company.

The first market to be developed was electric power. To implement its model in this market, Enron had to figure out how to ensure that it could meet commitments to provide power in peak periods. Unlike natural gas, electricity cannot be stored to satisfy peak demand, leading to even higher price volatility than in the gas market. Enron responded to this challenge by constructing "peaking plants" designed to meet short-term peaks in demand.

Enron had some successes in applying the gas bank trading model to electricity, but the viability of the model for some of the other products selected for expansion was uncertain. Would the additional contractual flexibility offered by Enron in the gas and electricity markets be as popular in the new markets? Further, each new market posed unique challenges. For example, while customers could not distinguish differences in the sources of gas or electricity, they cared about and could observe changes in water quality. The challenges of selling long-term contracts for broadband cable access included the use of unproven and non-standardized technology, difficulties in extending fiber optic networks over the "last mile" into buildings, and excess capacity. Finally, even if Enron

based on a floating interest rate. Thus, swaps provide a way of seeking lower cost financing and of hedging

was successful in creating these new markets, it was unclear whether early rents could be sustained given potential competition in each market.

International Expansion: Energy Asset Construction and Management

As Enron expanded beyond the natural gas pipeline business, it also reached beyond U.S. borders. Enron International, a wholly owned subsidiary of Enron, was created to construct and manage energy assets outside the United States, particularly in markets where energy was being deregulated. The unit's first major project was the construction of the Teesside electric power plant in the UK, which began operation in 1993. Enron subsequently entered contracts to construct and manage projects in Eastern Europe, Africa, the Middle East, India, China, and Central and South America. These projects represented significant investments in these economies.

While the privatization of energy producers and deregulation of energy markets created demand for the management of energy assets outside the United States, Enron faced some distinctive risks in entering these new markets. Some of the international projects were for the construction and management of pipelines, where Enron had a core competence, but many others were not. Could the company's core expertise be extended to other types of energy assets, such as power plants? Also, international diversification, particularly in developing economies such as India and China, exposed Enron to political risks. For example, the Dabhol power project in India represented the single largest foreign direct investment project till that time in India, and attracted considerable political opposition and controversy. Given its limited business experience in developing

risk.

economies, did Enron have expertise in managing the risk of ex post asset expropriation or taxation of returns from energy assets? Even if Enron was successful in the international energy market, questions could be raised about whether the company could create a sustainable advantage over competitors that later sought to enter the market. Many existing players had expertise in managing the construction and operations of power plants.

Financial Reporting

Enron's complex business model -- reaching across many products, including physical assets and trading operations, and crossing national borders -- stretched the limits of accounting.⁷ Enron took full advantage of accounting limitations in managing its earnings and balance sheet to portray a rosy picture of its performance.

Two sets of issues proved especially problematic. First, its trading business involved complex long-term contracts. Current accounting rules use the present value framework to record these transactions, requiring management to make forecasts of future earnings. This approach, known as mark-to-market accounting, was central to Enron's income recognition and resulted in its management making forecasts of energy prices and interest rates well into the future.

Second, Enron relied extensively on structured finance transactions that involve setting up of special purpose entities. These transactions shared ownership of a specific cash flows and risks with outside investors and lenders. Traditional accounting, which focuses on arms-length transactions between independent entities, faces challenges in dealing with such transactions. Accounting rule makers have been debating appropriate

⁷ The primary source of information on the financial reporting failures at Enron was Powers, Troubh, and Winokur (2002).

accounting rules for these transactions for several years. Meanwhile, mechanical conventions have been used to record these transactions, creating a divergence between economic reality and accounting numbers.

Trading Business and Mark-to-Market Accounting

In Enron's original natural gas business, the accounting had been fairly straightforward: in each time period, the company listed actual costs of supplying the gas and actual revenues received from selling it. However, Enron's trading business adopted mark-to-market accounting, which meant that once a long-term contract was signed, the present value of the stream of future inflows under the contract was recognized as revenues and the present value of the expected costs of fulfilling the contract were expensed. Unrealized gains and losses in the market value of long-term contracts that were not hedged were then required to be reported later as part of annual earnings when they occurred.

Enron's primary challenge in using mark-to-market accounting was estimating the market value of the contracts, which in some cases ran as long as 20 years. Income was estimated as the present value of net future cash flows, even though in some cases there were serious questions about the viability of these contracts and their associated costs.

For example, in July 2000 Enron signed a 20 year agreement with Blockbuster Video to introduce entertainment on-demand to multiple U.S. cities by year-end. Enron would store the entertainment, and encode and stream the entertainment over its global broadband network. Pilot projects in Portland, Seattle and Salt Lake City, were created to stream movies to a few dozen apartments from servers set up in the basement. Based on these pilot projects, Enron went ahead and recognized estimated profits of more than

\$110 million from the Blockbuster deal, even though there were serious questions about technical viability and market demand.

In another example, Enron entered into a \$1.3 billion, 15-year contract to supply electricity to Indianapolis' company, Eli Lilly. Enron was able to show the present value of the contract, reportedly for more than half a billion dollars, as revenues. Enron then had to report the present value of the costs of servicing the contract as an expense. However, Indiana had not yet deregulated electricity, requiring Enron to predict when Indiana would deregulate, and how much impact this would have on the costs of servicing the contract over the ten years.⁸

Reporting Issues for Special Purpose Entities

Enron used special purpose entities to fund or manage risks associated with specific assets. Special purpose entities are shell firms created by a sponsor, but funded by independent equity investors and debt financing. For example, Enron used special purpose entities to fund the acquisition of gas reserves from producers. In return, the investors in the special purpose entity received the stream of revenues from the sale of the reserves.

For financial reporting purposes, a series of rules is used to determine whether a special purpose entity is a separate entity from the sponsor. These require that an independent third-party owner have a substantive equity stake which is "at risk" in the special purpose entity (interpreted as at least 3 percent of the special purpose entity's total debt and equity). The independent third-party owner must also have a controlling (more than 50 percent) financial interest in the special purpose entity. If these rules are

not satisfied, the special purpose entity must be consolidated with the sponsor firm's business.

In total, Enron had used hundreds of special purpose entities by 2001. Many of these were used to fund the purchase of forward contracts with gas producers that were used to supply gas to utilities under long-term fixed contracts.⁹ However, several controversial special purpose entities were designed primarily to achieve financial reporting objectives. For example, in 1997 Enron wanted to buy out a partner's stake in one of its many joint ventures. However, Enron did not want to show any debt from financing the acquisition or from the joint venture on its balance sheet. Chewco, a special purpose entity that was controlled by an Enron executive, and raised debt that was guaranteed by Enron, acquired the joint venture stake for \$383 million. The transaction was structured in such a way that Enron did not have to consolidate Chewco or the joint venture into its financials, enabling it to effectively acquire the partnership interest without recognizing any additional debt on its books. More details on Chewco are presented in the Appendix and also in Powers, Trough, and Winokur (2002).

Chewco and several other special purpose entities, however, did more than just skirt accounting rules. As Enron revealed in October 2001, they actually violated accounting standards that require at least 3% of assets to be owned by independent equity investors. By ignoring this requirement, Enron was able to avoid consolidating these special purpose entities. As a result, Enron's balance sheet understated its liabilities and overstated its equity, and its earnings were overstated. On October 16, 2001, Enron announced that restatements to its financial statements for years 1997 to 2000 to correct these violations would reduce earnings for the four year period by \$613 million (or 23%

⁸ See Krugman (2002).

of reported profits during the period), increase liabilities at the end of 2000 by \$628 million (6% of reported liabilities and 5.5% of reported equity), and reduce equity at the end of 2000 by \$1.2 billion (10% of reported equity).

In addition to the accounting failures, Enron chose to provide minimal disclosure on its relations with the special purpose entities. The company represented to investors that it had hedged downside risk in its own illiquid investments through transactions with special purpose entities. Yet investors were unaware that the special purpose entities were actually using Enron's own stock and financial guarantees to carry out these hedges, so that Enron was not actually protected from downside risk.

Finally, Enron allowed several key employees, like its CFO Andrew Fastow, to become partners of the special purpose entities. In subsequent transactions between the special purpose entities and Enron, these employees profited handsomely, raising questions about whether they had fulfilled their fiduciary responsibility to Enron's stockholders.

Other Accounting Problems

Enron's accounting problems in late 2001 were compounded by its recognition that several new businesses were not performing as well as expected. In October 2001 the company announced a series of asset write-downs, including after tax charges of \$287m for Azurix, the water business acquired in 1998, \$180m for broadband investments, and \$544 for other investments. In total, these charges represented 22% of Enron's capital expenditures for the three years 1998 to 2000. In addition, on October 5, 2001 Enron agreed to sell Portland General Corp., the electric power plant it had acquired in 1997, for

⁹ See Tufano (1994) for a detailed description of these financial arrangements.

\$1.9b, a loss of \$1.1b over the acquisition price. Overall, these write-offs and losses raised questions about the viability of Enron's strategy of pursuing its gas trading model in other markets.

In summary, Enron gas trading idea was probably a good response to the opportunities arising out of deregulation. However, extension of this idea into other markets and international expansion were unsuccessful.¹⁰ Accounting games allowed the company to hide this reality for several years. Capital markets largely ignored red flags associated with Enron's spectacular reported performance, and aided the company's pursuit of a flawed expansion strategy by providing capital at a remarkably low cost. Further, they were willing to assume that Enron's reported growth and profitability would be sustained far into future, despite little economic basis for such a projection.

The market response to the announcements of accounting irregularities and business failures was to halve Enron's stock price and increase its borrowing costs. For a company that had relied heavily on outside finance to fund its trading businesses and acquisitions, the results were equivalent to a "run on the bank." Consequently, on November 8, Enron sought to avoid bankruptcy by agreeing to being acquired by a smaller competitor, Dynergy. However, on November 28, Enron's public debt was downgraded to junk bond status, and Dynergy withdrew from the acquisition. Finally, with its stock price at only \$0.26, on December 2, 2001, Enron filed for bankruptcy.

¹⁰ In this discussion, we do not consider profits Enron allegedly earned illegally through the manipulation of electricity prices in California. If these profits were excluded, Enron's performance would have been even worse.

Governance and Intermediation Failures at Enron

How could Enron's problems go undetected for so long? Most of the blame for failing to recognize Enron's problems has been assigned to the firm's auditors, Arthur Andersen, and to the "sell-side" analysts who work for brokerage, investment banking and research firms, and sell or make their research available to retail and professional investors. However, we hypothesize that the intermediation problems are deeper than this and affect each of the key players that provided a link between Enron's managers and investors. On the information supply side of the market, this includes top management and Enron's audit committee, along with Arthur Andersen. On the information demand side, it includes fund managers and financial regulators along with sell-side analysts. We consider these parties in turn.

Role of Top Management Compensation

As in most other US companies, Enron's management was heavily compensated using stock options. Heavy use of stock option awards linked to short-term stock price may explain the focus of Enron's management on creating expectations of rapid growth, and its efforts to puff up reported earnings to meet Wall Street's expectations. In its 2001 proxy statement, Enron noted that within 60 days of the proxy date (February 15), the following stock options awards would become excisable: 5,285,542 shares for Ken Lay, 824,038 shares for Jeff Skilling, and 12,611,385 shares for all officers and directors combined. At December 31, 2000, Enron had 96 million shares outstanding under stock option plans, almost 13 percent of common shares outstanding. According to Enron's proxy statement, these awards were likely to be exercised within three years, and there was no mention of any restrictions on subsequent sale of stock acquired.

The stated intent of stock options is to align the interests of management with shareholders. But most programs award sizable option grants based on short-term accounting performance, and there are typically few requirements for managers to hold stock purchased through option programs for the long-term. The experience of Enron, along with many other firms in the last few years, raises the possibility that stock compensation programs as currently designed can motivate managers to make decisions that pump up short-term stock performance, but fail to create medium- or long-term value.

Role of Audit Committees

Corporate audit committees usually meet for just a few times during the year, and their members typically have only a modest background in accounting and finance. As outside directors, they rely extensively on information from management as well as internal and external auditors. If management is fraudulent or the auditors fail, the audit committee probably won't be able to detect the problem fast enough.

Enron's audit committee had more expertise than many. It included Dr. Robert Jaedicke of Stanford University, a widely respected accounting professor and former dean of Stanford Business School; John Mendelsohn, President of the University of Texas' M.D. Anderson Cancer Center; Paulo Pereira, former president and CEO of the State Bank of Rio de Janeiro in Brazil; John Wakeham, former U.K. Secretary of State for Energy; Ronnie Chan, a Hong Kong businessman; and Wendy Gramm, former Chair of US Commodity Futures Trading Commission.

But Enron's audit committee seemed to share the common pattern of a few short meetings that covered huge amounts of ground. For example, consider the agenda for

Enron's Audit Committee meeting on February 12, 2001. The meeting lasted only one hour and 25 minutes, yet covered a number of important issues, including: a) a report by Arthur Andersen reviewing Enron's GAAP compliance and internal controls; b) a report on the adequacy of reserves and related party transactions; c) a report on disclosures relating to litigation risks and contingencies; d) a report on the 2000 financial statements, which noted new disclosures on broadband operations and provided updates on the wholesale business and credit risks; e) a review of the Audit and Compliance Committee Report; f) discussion of a revision in the Audit and Compliance Committee Charter; g) a report on executive and director use of company aircraft; h) a review of the 2001 Internal Control Audit Plan which included an overview of key business trends, an assessment of key business risks, and a summary of changes in internal control efforts by businesses for 2001 compared to the period 1998 to 2000; and h) a review of company policy for management communication with analysts and the impact of Regulation Fair Disclosure.¹¹

For most of the above agenda items, Enron's Audit Committee was in no position to second-guess the auditors on technical accounting questions related to the special purpose entities. Nor was it in a position to second-guess the validity of top management representations. However, the Audit Committee did not challenge several important transactions that were primarily motivated by accounting goals, was not skeptical about potential conflicts in related party transactions, and did not require full disclosure of these transactions (Powers, Troubh, and Winokur, 2002).

Role of External Auditors

¹¹ See Findlaw.com: <http://news.findlaw.com/legalnews/lit/enron/index.html#minutes>

Enron's auditor, Arthur Andersen, has been accused of applying lax standards in their audits because of a conflict of interest over the significant consulting fees generated by Enron. In 2000, Arthur Andersen earned \$25 million in audit fees and \$27 million in consulting fees. It is difficult to determine whether Andersen's audit problems at Enron arose from the financial incentives to retain the company as a consulting client, as an audit client, or both. However, the size of the audit fee alone is likely to have had an important impact on local partners in their negotiations with Enron's management. Enron's audit fees accounted for roughly 27 percent of the audit fees of public clients for Arthur Andersen's Houston office.

Whether the auditors at Andersen had conflicted incentives or whether they lacked the expertise to adequately evaluate financial complexities, they failed to exercise sound business judgment in reviewing transactions that were clearly designed for financial reporting rather than business purposes. When the credit risks at the special purpose entities became clear, requiring Enron to take a write-down, the auditors apparently succumbed to pressure from Enron's management and permitted the company to defer recognizing the charges. Internal controls at Andersen, designed to protect against conflicted incentives of local partners, failed. For example, Andersen's Houston office, which performed the Enron audit, was permitted to overrule critical reviews of Enron's accounting decisions by Andersen's Practice Partner in Chicago. Finally, Andersen attempted to cover up any improprieties in its audit by shredding supporting documents after investigations of Enron by the Securities and Exchange Commission became public.

Without making excuses for the Anderson auditors, it is useful to see their behavior against a backdrop of how the accounting industry has evolved. Two major

changes in the 1970s created substantial pressure for audit firms to cut costs and seek alternative revenue sources. First, in the mid-1970s the Federal Trade Commission, concerned with a potential oligopoly by the large audit firms, required the profession to change its standards to allow audit firms to advertise and compete aggressively with each other for clients. Second, legal standards shifted in the mid-1970s so that investors of companies with accounting problems no longer had to show that they specifically relied on questionable accounting information in making their investment decisions; instead, they could assert that they had relied on the stock price itself, which has been affected by the misleading disclosures (Easterbrook and Fischel, 1984). This change, along with increasing litigiousness, dramatically increased the litigation risks for auditors.

Audit firms responded to the new business environment in several ways. They lobbied for mechanical accounting and auditing standards and developed standard operating procedures to reduce the variability in audits. This approach reduced the cost of audits and provided a defense in the case of litigation. But it also meant that auditors were more likely to view their job narrowly, rather than as matters of broader business judgment.

Furthermore, while mechanical standards make auditing easier, they do not necessarily increase corporate transparency.¹² Audit firms decided that profit margins would be perpetually thin in a world of mechanized, standardized audits, and they responded in two ways. One way was by aggressively pursuing a high volume strategy, and so audit partner compensation and promotion became more closely linked to a cordial relationship with top management that attracted new audit clients and retained existing clients. This made it difficult for partners to be effective watchdogs. The large

audit firms also responded to challenges to their core business by developing new higher margin, higher growth consulting services. This diversification strategy deflected top management energy and partner talent from the audit side of the business to the more profitable consulting part.

The Enron debacle dramatizes the problems with a system of mechanical, standardized audits. It has led talented professionals to perceive that the audit profession is unattractive. It has led clients to perceive that audits are a regulatory obligation, not a value added service. It has led investors to perceive that audited reports are not really reliable. It has led regulators and the general public to perceive that auditors are beholden to their clients. It has not worked as a strategy for managing litigation risk, either, as Andersen's legal troubles following the fall of Enron dramatically shows.

Role of Fund Managers

At the height of Enron's popularity in late 2000 and early 2001, large institutional investors owned 60 percent of its stock. These included prestigious money management firms such as Janus Capital Corp., Barclay's Global Investors, Fidelity Management & Research, Putnam Investment Management, American Express Financial Advisors, Smith Barney Asset Management, Vanguard Group, California Public Employees Retirement Fund, Van Kampen Asset Management, TIAA-CREF Investment Management, Dreyfus Corp, Merrill Lynch Asset Management, Goldman Sachs Asset Management, and Morgan Stanley Investment Management.

By the end of 2000, there were some dissenting voices regarding Enron. *The Economist* ("The energetic messiah," 2000) questioned Enron's performance and James

¹² For example, Nelson, Elliott, and Tarpley (2002) show that mechanical accounting rules for structured

Chanos, a hedge fund manager, identified problems from disclosures on related party transactions involving the firm's senior officers and insider trading in late 2000. In November 2000, Chanos shorted the stock, and in February 2001 he tipped off a reporter at *Fortune*, Bethany McLean, who subsequently wrote the March article "Is Enron Overpriced?" However, institutional ownership of Enron continued to exceed 60 percent as late as October 2001, before collapsing to around 10 percent in December 2001 after the company announced its accounting problems. .

Several reasons have been proposed for why the leading fund managers were so slow to recognize the problems at Enron: they were misled by accounting statements or by sell-side analysts, or the incentives of fund managers to seek out high-quality information were poor. Let us consider these explanations in turn.

The difficulty with the first explanation – that fund managers were misled by Enron's aggressive accounting or by sell-side analysts – is that the company's stock price prior to its dramatic fall was driven by unrealistic expectations of *future* performance, even if one assumed that Enron's reported *historical* performance was real. Exhibit 4 offers a sense of the performance that Enron would have had to achieve to be worth its peak share price in 2000. The figure is based on applying a standard formula for the valuation of a company that begins with the expected return on the current book value in this year, and then incorporates assumptions about the growth of book value and the company's return on equity in future years, discounting these returns back to the present at the expected cost of equity.¹³ To assess the embedded expectations in Enron's stock price, begin by assuming that Enron's cost of equity was 12 percent, shown as a

finance transactions lead to more earnings management.

horizontal line in Exhibit 4.¹⁴ The lines on the graph showing return on equity and revenue are based on actual data up until 2000; after that point, they are based on what levels would be needed to justify the stock price of \$90 in August 2000. In such a framework, one scenario that would justify this price would have been for Enron to earn a return on equity of 25 percent forever, grow revenues to from \$100 billion to roughly \$700 billion in ten years (a 60% compound annual growth rate), and grow revenues by 10 percent per year thereafter.

These assumptions are highly aggressive. For example, Enron's actual return on equity was 18 percent in 1996, 2.5 percent in 1997, 12.5 percent in 1998, and 12 percent in 1999. Thus, the firm would have had to achieve a dramatic increase in return on equity and sustain it forever. The revenue growth needed to justify the Enron's peak stock price would have required a dramatic extension of its business model to new areas. As another benchmark for the reasonableness of these expectations, note the following historical averages for U.S. public companies over the period 1979-1998: average return on equity of 11 percent, a seven-year average horizon over which a company's return-on-equity reverts to the population mean; and an annual revenue growth rate of 4.6 percent (Palepu, Healy and Bernard, 2000).

¹³ This approach to valuation is equivalent to the discounted cash flow valuation approach, but relies on accounting numbers instead of cash flows. For further details on this approach, see Palepu, Healy, and Bernard (2000).

¹⁴ Enron in 2000 was a different company than it was in early 1990s. Therefore, in calculating its equity cost of capital in 2000, we used a beta of 1.7. This beta represents the average risk for a financial services company, rather than an energy company, because the only way for the company to achieve the growth projections was to aggressively grow the financial services segment of its business, rather than its energy segment. Also, to account for the dramatic rise in the stock market as whole in this period, we use a lower risk premium of 4 percent. The actual risk free rate at this time was around 5 percent. Therefore, we estimate Enron's equity cost of capital as: $5\% + 1.7 \times 4\%$, or approximately 12%. While this number looks very similar to the company's cost of capital in the earlier time frame, it is based on a different set of assumptions.

Regardless of the accounting issues or the sometimes self-serving reports of sell-side analysts, these sorts of straightforward calculations surely should have raised questions for the sophisticated fund managers who owned more than half of Enron's stock right up to October 2001.

An alternative explanation is that investment fund managers failed to recognize or act on Enron's risks because they had only modest incentives to demand and act on high quality long-term company analysis. As one example, index funds that do not undertake any fundamental research and instead invest in a balanced portfolio of securities that track a particular index (like the Standard & Poor's 500), by definition do not pay attention to fundamental analysis. This issue is relevant for Enron, since index funds were important owners of Enron stock. For example, in December 2000, Vanguard Group, a leading index manager, was Enron's tenth largest institutional investor.

But what about non-index fund managers, who supposedly do have incentives to undertake fundamental analysis and to act on it? These managers are typically rewarded on the basis of their relative performance. Flows into and out of a fund each quarter are driven by its performance relative to comparable funds or indices. We postulate that this structure leads to herding behavior. Consider the calculus of a fund manager who holds Enron stock but who, through long-term fundamental analysis, estimates that it is overvalued. If the manager reduces the fund's holdings of Enron and the stock falls in the next quarter, the fund will show superior relative portfolio performance and will attract new capital. However, if Enron continues to perform well in the next few quarters, the informed fund manager will underperform the benchmark and capital will flow to other funds. In contrast, a risk-averse manager who simply follows the crowd will not be rewarded for foreseeing the problems at Enron, but neither will this manager be blamed

for a poor investment decision when the stock ultimately crashes, since other funds made the same mistake.¹⁵

Given the challenges in being able to time major stock downturns, such as Enron, we believe most fund managers will simply follow the crowd. Their efforts will focus on identifying when other investors are likely to buy or sell stocks, rather than on their own fundamental analysis. This hypothesis explains why so many fund managers continued to buy dot com stocks at the height of the bubble, even when they were skeptical of the valuations (Palepu, 2001). It also explains why so many funds rely heavily on sell-side analysts, because even if their judgment is biased, the sell-side analysts focus primarily on near-term stock performance that is critical to matching the herd.

Role of Sell-Side Analysts

Sell-side analysts have received considerable criticism for failing to provide an earlier warning of problems at Enron. On October 31, 2001, just two months before the company filed for bankruptcy, the mean analyst recommendation listed on First Call (which compiles and distributes analyst recommendations) for Enron was 1.9 out of 5, where 1 is a “strong buy” and 5 is a “sell.” Even after the accounting problems had been announced in October 2001, reputable institutions such as Lehman Brothers, UBS Warburg, and Merrill Lynch issued “strong buy” or “buy” recommendations for Enron.

¹⁵ Hedge funds, which are allowed to sell stocks short, have incentives to identify and bet against overvalued stocks. Most mutual funds are prohibited from short-sales, so they do not have similar incentives; Dechow, Hutton, Meulbroek, and Sloan (2001) present a full discussion of this issue. Hedge funds’ ability to fully counter the affect of mutual fund managers’ incentives, however, is limited. When overvaluation persists for a long time, short-selling can be a very risky strategy and, to be successful, requires a large capital base and a long-horizon. Many hedge funds, which as a group are much smaller than mutual funds, find it difficult to pursue this strategy. Instead, they tend to sell stocks short only when they anticipate a reversal of price in a relatively short period.

Why were analysts so slow to recognize the problems at Enron? One popular explanation is that many analysts had financial incentives to recommend Enron to their clients to support their firms' investment banking deals with Enron. Investment banks earned more than \$125 million in underwriting fees from Enron in the period 1998 to 2000, and many of the financial analysts working at these banks received bonuses for their efforts in supporting investment banking.

To assess the impact of investment banking services on Enron's sell-side analysts, we collected their twelve-month target price estimates for the period January 1, 2001, through October 16, when Enron revealed the extent of its accounting and business problems. Four analysts worked for firms that did not provide significant investment banking services: A. G. Edwards, Bernstein Research, Commerzbank, and PNC Advisors. Nine analysts worked for firms that worked on Enron investment banking deals, and two analysts worked for firms that did investment banking but were unaffiliated with Enron. Exhibit 5 presents analysts' one-year ahead forecasts of Enron's stock price deflated by its actual price on the forecast date. Three key findings emerge. First, consistent with potential conflicts of interest from investment banking, on average analysts that do investment banking expected to see twelve-month price appreciation of 54%, compared to only 24% for analysts that do not work for investment banks. This difference is statistically significant. Second, price appreciation expected by analysts of investment banks with no current banking ties was as optimistic as for analysts with current banking relationships (62% and 53% respectively), suggesting that the conflict of interest is driven by the *potential* for future business as much as current business itself. Third, even analysts with no investment banking business at all were subject to optimistic

bias, indicating that banking conflicts alone do not explain bias in analysts' forecasts and recommendations.

The interdependence of sell-side analysts with investment banking business is a relatively recent development. Up until 1975, brokerage firms charged fixed commissions for trading, and used some of these funds to finance research by in-house sell-side analysts, which they distributed free to large institutional clients. In May 1975, fixed commissions were deregulated and began to bring in much less revenue, leading brokerage houses to a search for other sources of funding for research (Strauss, 1977). Some banks responded by charging clients directly for research. However, by the early 1990s, the earnings of investment banking from underwriting initial public offerings and other financial transactions had become the primary source of funds for supporting research.

A range of academic research findings have found evidence that sell-side analysts are influenced by their proximity to investment banking. Lin and McNichols (1998a, 1998b), Michaely and Womack (1999), and Dechow, Hutton and Sloan (2000) show that long-term earnings forecasts and investment recommendations are more optimistic for analysts that work for lead underwriter banks. Hutton (2000b, 2002a) provides evidence that selective disclosure by companies, together with a desire by analysts to maintain access to management and to attract investment banking business to their employers, has led to biased earnings forecasts. In general, the conflict between research and underwriting has been used to explain a decline in sell recommendations by analysts over time and the poor record of analysts that covered dot-com stocks.

Sell-side analysts faced several other potentially serious conflicts that have been less widely discussed. First, analysts rely heavily on access to management for “inside”

information and feedback on their analysis and research models. Management is less likely to provide access to analysts that are critical of management and negative about the company's prospects. The selective way that management provided information to favored analysts, and to analysts ahead of retail investors, gave rise to Regulation Fair Disclosure in October 2000, which required management to make all material new information available to all investors at the same time.¹⁶ Another potential conflict arises from sell-side analysts' relationships with institutional investors, who play an important role in the annual evaluations of analysts through their ratings for *Institutional Investor* magazine: analysts that receive All Star ratings typically receive higher bonuses and prestige. Relatively little research has examined this interaction. Are analysts reluctant to downgrade a stock that is owned by key institutional clients? Are there differences in recommendations by analysts whose clients are primarily retail investors rather than institutions?

Sell-side analysts do not make their projections in isolation, but in a network of ongoing relationships that includes the investment bankers at their firms, the management of the companies that they cover, and the customers who read their reports.

Role of Accounting Regulation

Many U.S. accounting standards tend to be mechanical and inflexible. Clear-cut rules have some advantages, but the downside is that this approach motivates financial engineering designed specifically to get around these knife-edge rules, as is well understood in the tax literature. In accounting for some of its special purpose entities,

¹⁶ Hutton (2002) examines earnings forecast patterns for firms whose managers actively provided guidance to analysts prior to Regulation Fair Disclosure.

Enron was able to design transactions that satisfied the letter of the law, but violated its intent such that the company's balance sheet did not reflect its financial risks.

The Financial Accounting Standards Board had recognized for several years that problems existed with the rules for special purpose entities. However, FASB attempts to operate by forming a consensus between affected groups, and it had not been able to reach consensus on an alternative. In setting new accounting standards, the Board solicits input from interested parties and amends its proposal to reflect feedback. The Board itself is comprised of representatives of various affected groups - auditors, managers and the investment community – and new standards require approval by five out of seven Board members. Finally, the Board's actions are closely scrutinized and at times overruled by the Securities and Exchange Commission and the political establishment. Setting standards through this process can be slow, difficult and political. Along with the delay in amending rules for special purpose entities, the ongoing debate on whether stock options should be treated as a current expense to the firm is another prominent illustration of the political nature of standard setting. Moreover, when standards are passed as a result of intensive negotiations, they often tend to be highly detailed, mechanical, and inflexible.

Responses

Key capital market participants were too late in recognizing the problems at Enron, and at many other firms as well in the late 1990s and early 2000s. Debate about a laundry list possible changes needed to deter future Enron situations has been widespread. For example, the Securities and Exchange Commission has proposed independent monitoring of audit firms, called for audit firms to sell their consulting businesses or to eliminate certain types of consulting with audit clients, and

recommended disclosure of analyst involvement and compensation from their firms' investment banking activities. Other proposals have suggested changes in stock options, like requiring firms to treat options as a current expense or imposing restrictions on the sale of stock by managers until after they leave office, and requiring top executives to return gains made from selling in a market that had been influenced by fraudulent financial reporting. Many firms are reacting by adding independent members to their board of directors, and by assuring greater financial expertise and longer meetings for their audit committees. While these kinds changes are likely to be helpful, we focus here on some more fundamental changes that are potentially needed to address the questions raised in our earlier analysis.

From Audit Committees to Transparency Committees

Investors want financial transparency: adequate information to reliably assess how a company is being run and what its prospects and risks are. But the audit committee's current role is limited to the narrow and technical task of assuring that the firm is following generally accepted accounting principles as certified by the outside auditors. We recommend that the audit committee be refocused on ensuring that investors have adequate information regarding the firm's economic reality. In line with this change in role, we propose that the committee be renamed the "transparency committee."

In its scrutiny of financial statements, the transparency committee should devote most of its time to assessing the effectiveness of those *few* policies and decisions that have the *most* impact on investors' perceptions of the company. The goal should be to

help investors and other members of the board of directors understand the firm's value proposition, strategy, key success factors and risks. For example, a Transparency Committee at Intel would focus disproportionately on product innovation and technological changes; at Southwest Airlines, perhaps on cost controls; at Tyco, the risk of acquisitions; at Consec, the pattern of loan losses. In questioning the auditors and management, the committee should focus on the adequacy of disclosures relating to these key performance indicators, so that the picture painted in the financial statements reflects the business discussions in the boardroom.

A transparency committee is no cure-all. In the case of Enron, for example, a transparency committee probably would not have had any impact on the company's violations of accounting rules – the committee would have continued to rely on the advice of the external auditors. However, we believe that a transparency committee would increase the likelihood that a firm's key business risks are transparent to investors. In the case of Enron, for example, it might well have led to more transparent disclosure with regard to the special purpose entities. It would encourage auditors to go beyond mechanical compliance with accounting rules and to provide more detail and attention to issues of key importance in the business. Finally, a transparency committee that plays a more proactive role with the auditor is likely to help the auditor appreciate that its primary responsibility lies with the board, and not with pleasing top management.

Rethinking the Auditor's Business Model

Most of the proposals for improved auditing have focused on the potential conflicts between auditing and consulting practices. However, we believe that audit firms need to rethink their entire business model.

Auditors have to realize why they exist in the first place -- to help investors identify stocks that are good investments and those that are lemons. Auditors need to change their strategy from minimizing the costs and legal risks of performing this task – and trying to increase profits in other areas like consulting – and instead to focus on maximizing the value of audits. Ultimately, this means audits that go beyond a boilerplate certification of narrow conformity with accounting standards, but allow a more complete reflection of the insights of the auditor on the client’s performance and risks. Under this approach, audit firm will be more likely to craft a distinctive value proposition, targeting a select segment of clients rather than attempting to be a one-stop shop for all types of clients.

We think that any true reform of the audit profession can only happen when audit committees are reformed as well. We think that true auditor independence can only be achieved when auditors see audit committees as their real clients, not top management. Moreover, incentives inside the audit firms need to encourage audit professionals to exercise judgment, and walk away from clients that don’t deserve their certification – even when they are big and important.

These proposals may appear to subject auditors to increased litigation risk. We have three answers to this potential concern. First, all business activities designed to create value entail taking risks. Well-managed businesses deal with risk through acquisition of talent, right incentives, checks and balances, and appropriate pricing policies. We think that audit firms should follow these practices. Second, firms need to be more willing to walk away from clients that are pursuing nonvalue-creating business strategies, even if there are no accounting disagreements. This will reduce the likelihood that audit firms are blamed for pure business failures because they have “deep pockets.”

Finally, we need to rethink the way our system handles business failures. Instead of the approach of responding to business failures through litigation, we believe that significant failures need to be analyzed by an independent body of experts – much like air crashes are investigated by the Federal Aviation Administration. If that analysis points to shoddy work by auditors, then hold the auditor accountable. But let that determination be made by experts.

We believe that auditing is critical to the functioning of the capital markets, but we also believe that regulators and industry leaders ought to focus on radically repositioning the industry to make it a value creating player in the economy.

An Alternative Environment for Institutional Investors

Failures in the supply of information, attributable to the auditors and the audit committee are important. However, they cannot be viewed in isolation. We argue that there were critical failures in the demand for information from sophisticated institutional investors, who drove Enron's stock price to very high levels based on unrealistic performance expectations. The ways in which fund managers are compensated for relative performance, which can lead to herd behavior, should be rethought. In turn, these demand-side phenomena have an important impact on the incentives of auditors and analysts to invest in high quality information supply.

The case of Enron has illustrated that economists know surprisingly little about the incentives and information problems that arise in the governance and functioning of capital market intermediaries, and the role these imperfections play in creating unsustainable jumps in stock market prices, incentives for overly aggressive and even fraudulent accounting, and more broadly for mismanaged firms. While quick fixes like

separating auditors from consultants or sell-side analysts from investment bankers may be worthwhile, we believe that there is a need for a deeper reconsideration of the goals, incentives, and interactions of these capital market intermediaries.

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Exhibit 1

Timeline of Critical Events for Enron in the period August 2001, to December 2001

Date	Event
Aug. 14, 2001	Jeff Skilling resigned as CEO, citing personal reasons. He was replaced by Ken Lay.
Mid- to late Aug.	Sherron Watkins, an Enron vice-president, wrote an anonymous letter to Kenneth Lay expressing concerns about the firm's accounting. She subsequently discussed her concerns with James Hecker, a former colleague and audit partner at Andersen, who contacted the Enron audit team.
Oct. 12, 2001	An Arthur Andersen lawyer contacted a senior partner in Houston to remind him that company policy was not to retain documents that were no longer needed, prompting the shredding of documents.
Oct. 16, 2001	Enron announces quarterly earnings of \$393m, and non-recurring charges of \$1.01b after tax to reflect asset write-downs primarily for water and broadband businesses.
Oct. 22, 2001	The Securities and Exchange Commission opened inquiries into a potential conflict of interest between Enron, its directors and the special partnerships.
Nov. 8, 2001	Enron restated its financials for the prior four years to retroactively consolidate partnership arrangements. Earnings from 1997 to 2000 declined by \$591 million, and debt for 2000 increased by \$658 million.
Nov. 9, 2001	Enron entered merger agreement with Dynegy.
Nov. 28, 2001	Major credit rating agencies downgraded Enron's debt to junk-bond status, making the firm liable to retire \$4bn of its \$13bn debt. Dynegy pulled out of the proposed merger.
Dec. 2, 2001	Enron filed for bankruptcy in New York, and simultaneously sued Dynegy for breach of contract.

Exhibit 2
The Intermediation Chain Between Managers and Investors

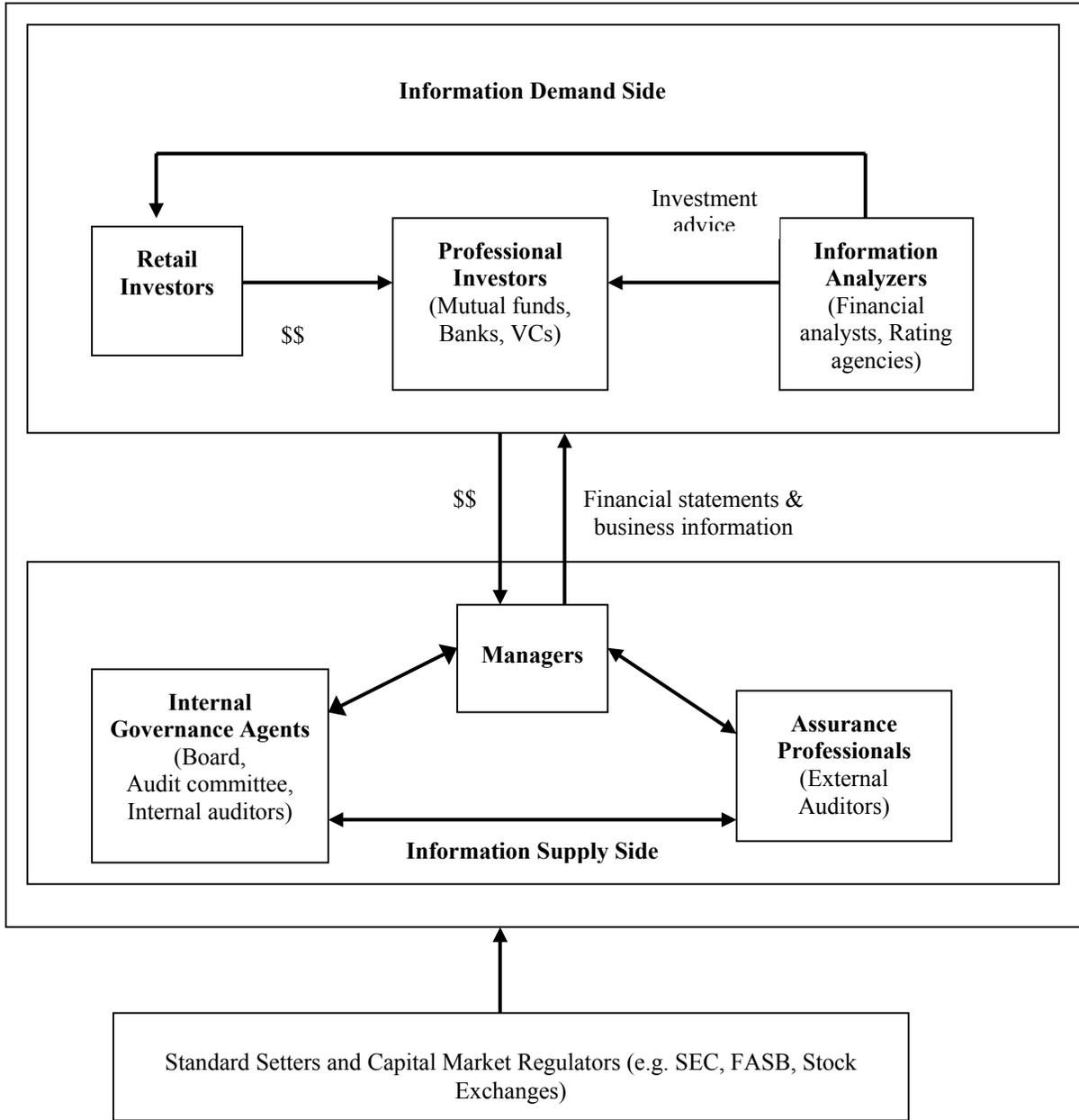


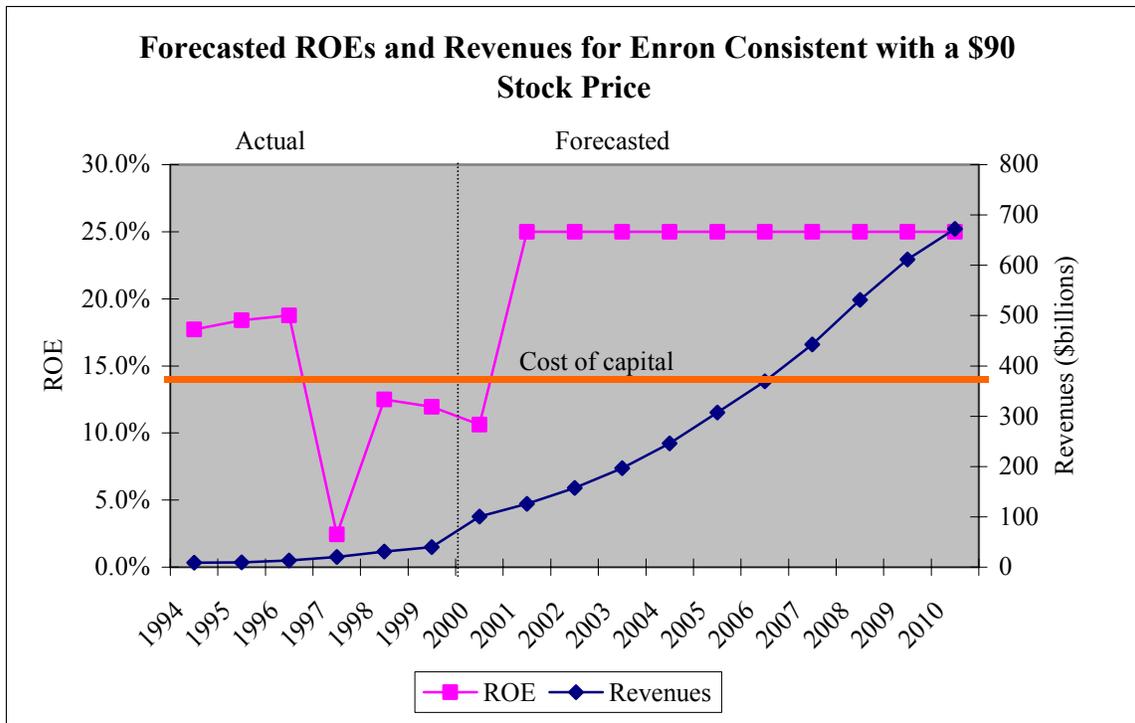
Exhibit 3

Enron segment and stock market performance in the period 1991 to 2000

(\$ millions)	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Domestic: Pipelines										
Revenues	\$1,629	\$1,501	\$1,466	\$976	\$831	\$806	\$1,416	\$1,849	\$2,032	\$2,955
EBIT	343	378	382	403	359	570	580	637	685	732
Domestic: Trading & Other										
Revenues	\$3,841	\$4,921	\$6,624	\$6,977	\$7,269	\$10,858	16,659	\$23,668	\$28,684	\$77,031
EBIT	250	314	316	359	344	332	766	403	592	2,014
International										
Revenues	\$1,039	\$894	\$914	\$1,380	\$1,334	\$2,027	\$2,945	\$6,013	\$9,936	\$22,898
EBIT	59	24	134	189	196	300	(36)	574	722	351
Stock Performance										
Enron	28%	32%	25%	5%	25%	13%	-4%	37%	56%	87%
S&P 500	26%	4%	7%	-2%	34%	20%	31%	27%	20%	-10%
Major Business Events										
	Sth Am. expansion	Teeside opens	Begins electricity trading		Begins constn of Dabhol plant	Acquires Portland General Corp	Acquires Wessex Water in UK	Creates Enron Online	Trading contracts double	Calif. energy crisis

Source: Enron 10-Ks

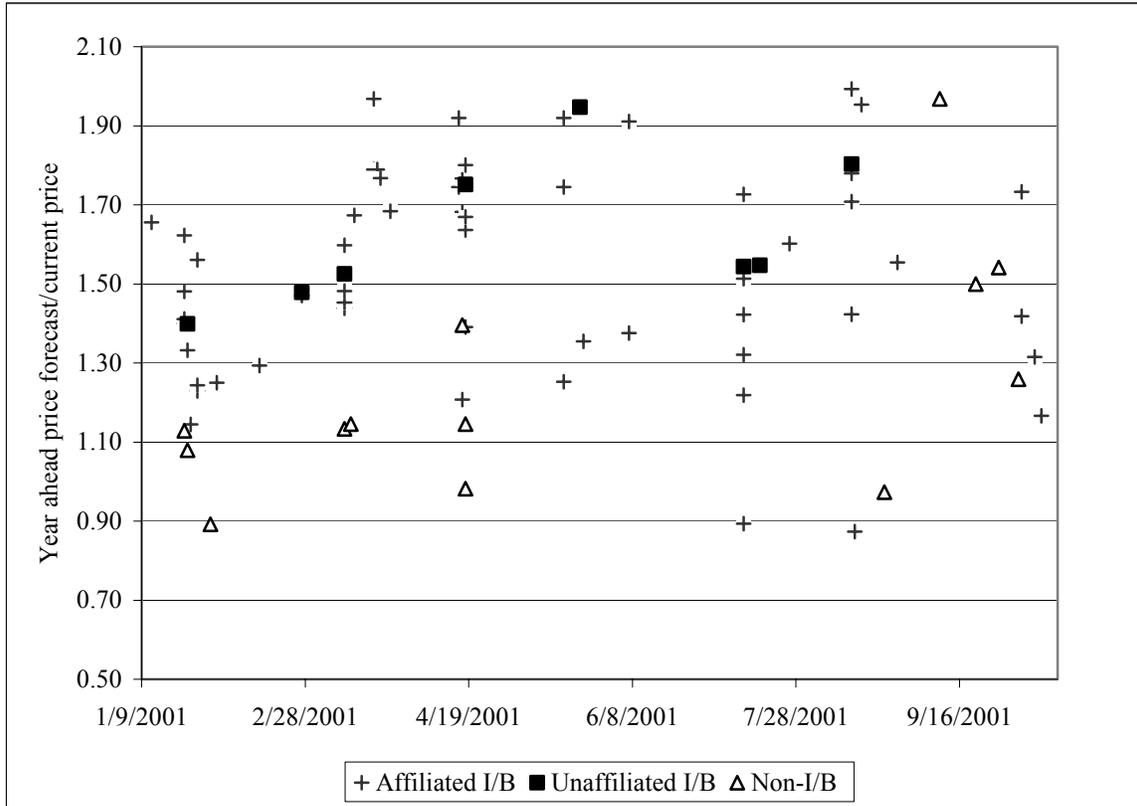
Exhibit 4



This analysis is based on the following valuation model, where V is the value of equity, ROE_t is expected return on book equity in period t , BVE is the period 0 book value of equity, g_t is the expected cumulative growth in book equity from period 0 to t , and Re is the expected cost of equity. For further details see Ohlson (1995).

$$V = BVE \left\{ 1 + \frac{E(ROE_1) - Re}{(1 + Re)} + \frac{(E(ROE_2) - Re) * (1 + g_1)}{(1 + Re)^2} + \frac{(E(ROE_3) - Re) * (1 + g_2)}{(1 + Re)^3} + \dots \right\}$$

Exhibit 5
Sell-side analysts one-year ahead price forecasts for Enron



Analysts' price forecasts are made during the period January 1, 2001 to October 15, 2001, and are deflated by Enron's actual price on the forecast date. Analysts are separated into three groups: (1) those that work for firms that engaged in investment banking activities with Enron (Affiliated I/B), (2) those that work for firms that do investment banking, but not with Enron (Unaffiliated I/B), and (3) those that do not do investment banking (Non-I/B).

Source: Investext

Appendix

Example of Enron Accounting Problems: the JEDI Joint Venture and Chewco Special Purpose Entity

In 1993, Enron and California Public Employees Retirement System (CalPERS) formed JEDI, a joint venture. Enron invested \$250 million of its own stock into the joint venture. Enron accounted for this investment using the equity method. The equity method is used to record equity investments when one firm acquires 20 percent or more of the stock in another, the “associate” company. Under the equity method, the value of the investment is reported at the acquirer’s initial cost plus its share of any subsequent accumulated profits/losses reinvested by the associate firm. In addition, investment income for the acquirer is its share of the associate’s earnings for the year/quarter (adjusted for any transactions between the two firms), rather than merely any dividend income received from the associate. As a result, Enron’s share of JEDI’s debt was kept off Enron’s balance sheet while Enron recorded its share of JEDI’s earnings as equity income.

One accounting irregularity that arose from the JEDI joint venture was that Enron incorrectly included in income from JEDI the appreciation in the value of Enron stock owned by JEDI, which JEDI marked to market value. This may have been an oversight. However, when Enron’s stock price began to decline, Enron specifically excluded its share of the unrealized losses from equity income.

In 1997, Enron wanted to buy out the CalPERS interest in JEDI. However, it did not want to have to consolidate JEDI into Enron, since doing so would boost Enron’s reported leverage. Chewco was therefore created to acquire the CalPERS investment. Chewco funded the purchase price of \$383 million as follows:

- a) \$240 million of debt from Barclays Bank, guaranteed by Enron;
- b) \$132 million advanced by JEDI under a revolving credit arrangement;
- c) \$0.1 million equity invested by Michael Kopper, an Enron employee who reported to Andy Fastow, Enron's Chief Financial Officer; and
- d) \$11.4 million "equity loan" by Barclays Bank, structured in such a way as to be recorded as a loan on Barclay's books and as equity by Chewco. Barclays also required the equity investors to establish "cash reserves" of \$6.6 million fully pledged to secure the repayment of the \$11.4 million equity loan. To fund this reserve, JEDI sold assets and made a special distribution of \$16.6 million to Chewco

The result of the requirement for cash reserves was that Enron failed to satisfy the rules for non-consolidation, so that Chewco and JEDI should have been consolidated beginning in November 1997. In addition, the transaction potentially violated the spirit of the rules governing special purpose entities, since one of the principal equity investors was an employee of Enron, and therefore arguably not independent of the company. In November 2001, Enron announced that it would consolidate both Chewco and JEDI retroactive to 1997. As a result of this restatement, its equity at the end of 2000 declined by \$814 million, and its debt increased by \$628 million.

A more detailed discussion of JEDI/Chewco, and of several other prominent special purposes entities that were involved in Enron's accounting irregularities, can be found in a report from the Special Investigative Committee of the Board of Directors of Enron Corp (see Powers, Troubh and Winokur, 2002), which can be accessed on the web at <http://news.findlaw.com/hdocs/docs/enron/sicreport/index.html>.