Lehman’s Valuation of Its Assets

The purpose of this chapter is to examine the whole issue of valuing Lehman’s assets. This is a more complex subject than it may first appear. The way in which Lehman valued its assets has to be set in the context of the way in which assets were or should have been valued at the time. The reasons for the market’s lack of confidence in Lehman’s valuations are explained in this chapter. The kind of regulations governing valuation in force between 1994 and 2007 are set out here. None of these applied to the Big Five investment banks, only to banks regulated by the agencies: the Office of the Comptroller of the Currency (OCC), the Federal Reserve, the Federal Deposit Insurance Corporation (FDIC) and the Office of Thrift Supervision (OTS). That left another regulatory gap. The SEC did not examine the real estate risks Lehman ran, lacking a mandate and regulations to do so. In other words, it was not the process of bankruptcy that destroyed value. Lehman’s real estate assets did not have the value the company had attached to them. Ultimately, the value of the derivatives depended on the value of the underlying assets, and the fall in their value reflected the fall in real estate prices from mid-2006 onwards.

Lehman’s estimates of the valuation of Archstone and SunCal

Lehman, in its Earnings conference call, referred to its two large positions: SunCal and Archstone. The former was one of the largest privately held developers of master planned communities in the Western United States. Lehman’s exposure to SunCal was primarily in Southern California, consisting of 23 separate residential developments and one luxury high-level residential development.

These positions, approximately 90% of which were originated as senior debt, have an aggregate carrying value of $1.6bn, are marked in the mid-70s...
portfolio is marked to where an investor could achieve a 15% unleveraged return over a five-year hold period.

With regard to Archstone, Lehman pointed out that

Archstone also has an extensive land development platform and land inventory which do not generate current cash flow but have substantial value and are often overlooked in evaluating its worth... in recognition of the change in real estate valuation metrics, we have taken a significant markdown on the position. Our equity exposure in Archstone is currently carried at 75 for a value of less than $1.8bn.1

Lehman claimed that the valuations were fair, but that was on the basis of their own valuations with the assistance of their real estate adviser, TriMont. The valuations were Lehman’s own, and were presented as being marked to market.

Risk management and valuations are inevitably closely linked, especially as Lehman used pricing models to ‘value, aggregate and hedge risk positions’. These ‘pricing models produce valuations and risk-factor sensitivities... which are fed into the risk models used by the Global Risk Management Division.’2 Lehman’s Principal Transactions Group (PTG) was responsible for valuing the company’s investments in real estate development or improvement projects, generally lasting two to five years, after which the property would be sold. These positions were illiquid until completion, and were not put up for sale before that, which meant that PTG could not rely on any sales data. The Examiner records that Anthony Barsanti, the PTG Senior Vice President responsible for marking the PTG positions, told him that Lehman valued these investments through a combination of financial projections and ‘gut feeling’ due to the unique nature of each asset and the lack of sales data regarding comparable debt and equity positions.3 The ‘gut feelings’ included judgement based on ‘experience, the collateral’s performance with respect to the development’s business plan, and other market data related to the collateral’s geographic region or property type that was not always accounted for in their models.’

The PTG’s ‘portfolio was supposed to represent Lehman’s judgement as to the price at which each position could be sold to a third party as of a particular measurement date, as required by SFAS 157’.4 As noted earlier, the Examiner records that ‘Barsanti, whom Kenneth Cohen identified as the person principally responsible for determining PTG marks, stated that he did not know whether PTG assets could be sold for the price at which they were marked and stated that he had not thought about it’.5 The valuation was ‘based on whether the development was proceeding according to the project’s business plan and not
the price the buyer would pay for the asset. The assets, which were valued at about $9.6bn at the end of the fiscal year 2007, were written down by $1.1bn over the first three quarters of 2008.

The Examiner also describes the ways in which TriMont operated, and the contempt with which Lehman’s employees viewed the company. Aristide Koutouvides, Vice President of PTG, for example, ‘considered the stabilised value reported by TriMont to be useless’, because their asset managers were relying too heavily on developers’ assurances that a particular project would be successful, rather than looking at the deteriorating market conditions. Barsanti did not share Koutouvides’ belief that TriMont provided high valuations, but he agreed that PTG often had to instruct TriMont to correct the data.

These are the key points arising from the Examiner’s analysis of Lehman’s approach to valuation. The purpose of this chapter is to detail the regulations covering appraisals and valuations of real estate, applicable at the time and to consider Lehman’s approach in the light of these regulations.

Interagency Appraisal and Valuation Guidelines

These are the guidelines which applied before 2008. They include Title XI of the Financial Institutions Reform, Recovery and Enforcement Act 1989, which required the agencies to provide guidelines for the appraisal and valuation of both residential and commercial real estate. These were set out by each of the agencies separately in 1992.

The 1994 Guidelines

The first set of interagency guidelines was issued in 1994. These were designed to promote sound practice in the banks’ appraisal and evaluation programmes, including independent appraisals and valuations. The 1994 Guidelines emphasize the need for the independence of the appraiser, as well as the requirement for the appraiser to have the necessary qualifications, as set out in the state regulations. The Guidelines state that

because the appraisal and the evaluation process is an integral component of the credit underwriting process, it should be isolated from influence by the institution's loan production process. An appraiser and an individual providing evaluation services should be independent of the loan and collection functions
of the institution and have no interest, financial or otherwise, in the property or the transaction.\textsuperscript{9}

The Guidelines also placed the responsibility for reviewing and adopting policies and procedures that establish an effective real estate appraisal programme on the institution’s board of directors. These Guidelines typically provide detailed procedures for appraisals and valuations.

### The 2003 Guidelines

The 1994 Guidelines were followed by another interagency set of guidelines for the independent appraisal and evaluation functions, on 27 October 2003. These laid down stricter rules for the selection of individuals to carry out appraisals or evaluations, including independence, competence, qualifications and experience. The 2003 Guidelines expressly forbid the use of a ‘borrower ordered’ appraisal or a ‘readdressed appraisal’. The lender must directly engage the appraiser. The 2003 Guidelines included effective internal controls and compliance reviews. The company had to be able to confirm that appraisals and evaluations were reviewed by qualified and trained staff, not involved in the process of granting loans. Banking supervision included checks on the appraisals.

### The 2006 Guidelines

Further guidelines were issued in December 2006, with the focus this time on concentrations in commercial real estate lending and on sound risk management practices in particular.\textsuperscript{10} The regulators had observed the increased concentration and that this added ‘a dimension of risk that compounds the risk inherent in individual loans, making the institutions more vulnerable to cyclical CRE markets.’\textsuperscript{11} There should be a risk management framework to identify, monitor and control CRE concentration risks.

The responsibilities of the board of directors are clearly set out. These included establishing policy guidelines, making sure that management implemented procedures and controls. It was management’s responsibility to identify and quantify the nature and level of the risk, and review the CRE risk exposure limits, reducing them when necessary.
Management was expected to monitor concentration levels of loan participation, whole loan sale, securitization and selling CRE loans. If the contingency plan included the latter, then management should assess the marketability of the portfolio. Management had to be sure of its ability to access the secondary market and that its underwriting standards matched those in the secondary market. The regulators were clearly becoming concerned about the mortgage market and the commercial real estate market. But the publication of their new Guidelines at the end of 2006 was almost too late. Much of the damage had already been done.

The purpose of the 2006 Guidelines

The focus of the 2006 Guidelines was on the risks of concentration in CRE lending at banking institutions. These were defined as follows:

- Loans for construction, land and land development (CLD) represented 100 per cent or more of a bank’s total risk-based capital and total CRE non-owner-occupied represented 300 per cent or more of the bank’s total risk-based capital.
- The growth in total CRE lending had increased by 50 per cent or more during the previous 36 months.
- The guidance stated that such banks should have in place enhanced credit risk controls, including stress testing of the CRE portfolios.
- These banks would require further supervisory examination.

Irrelevance of the 2006 Guidelines

An analysis completed in 2013 found that 31 per cent of all commercial banks in 2006 exceeded at least one of the supervisory criteria. In 2006, these banks held $378bn in outstanding CRE loans, almost 40 per cent of all outstanding CRE loans. These exposures began to decline in 2007. Not surprisingly, these banks were more likely to fail and in fact, 23 per cent did during the years between 2008 and 2010. Banks exceeding the construction criterion limits accounted for about 80 per cent of the losses to the FDIC between 2007 and 2011. In addition, the banks that had exceeded the CRE construction levels were more likely to reduce the size of their portfolios between 2008 and 2011, especially in construction.\textsuperscript{12}
The regulators took no further action if banks failed to keep to the guidelines. The expectation was that banks would set up appropriate risk management strategies. It was possible to exceed the limits, but without any external checks on the effectiveness of their controls. The agencies did not set any caps. Banks with concentration levels above the limits in 2011 were also above the limit in 2006.

The 2006 Guidance clearly was not very successful in ensuring that the banks would reduce the level of concentration and the risks involved.

November 2008 proposed Interagency Appraisal and Evaluation Guidelines

These were intended to replace all previous guidelines. They would include revisions to the Uniform Standards of Professional Appraisal Practice (USPAP) and developments in collateral valuation practices since 1994 and would reflect improvements to the supervision of banks’ appraisal and valuation programmes since 1994. The new guidelines were published in the Federal Register on 10 December 2010, when the worst of the financial crisis was over. Reference is made to the new Guidelines because it shows how slowly the agencies react to market developments, posing real risks to the viability of banks.

It is true that Lehman was not bound by the guidance. Even though the agencies were largely ineffective, at least some standards were available as a yardstick by which to judge the risks a bank was taking. For Lehman and other investment banks, there was nothing. Despite the lack of regulation, it would have made sense for Lehman to select one of the international property companies operating in the USA, experienced in providing valuations for large-scale development projects, such as SunCal. Such firms would have carried valuations at regular intervals to take account of all the changing circumstances, including changes in macroeconomic conditions.

Valuation methodologies and mark-to-market

Lehman used various approaches to valuation from 2006 onwards for its commercial-principal transactions group’s portfolio (PTG). They used both mark-to-credit and mark-to-yield. The first recognizes any changed collateral value due to any change in the business plan, which also changes the amount
and/or timing of future expected cash flows from the collateral, which were the properties underlying the PTG’s positions. Marking to yield takes account of the changes in the market generally, even if the condition of the particular asset have not changed. Yield, or the rate of return or discount rate, is the rate used to determine the present value of future expected cash flows, taking account of the fact that the asset may not perform as expected. These approaches are essential for marking to market, which is integral to the concept of fair value. Both marking to yield and marking to credit involve changing the value of the property, due to changed circumstances or in recognition of the changed risk that the asset will not perform as expected.

Lehman increasingly relied on TriMont for loan servicing and asset management, and by May 2008, TriMont serviced over 90 per cent of Lehman’s PTG assets. It provided other services such as handling insurance issues, administration for construction, and it dealt with local developers for Lehman. Its range of services also included asset management, asset servicing, bond financial services, underwriting, defeasance consulting and information management. It did not provide valuation and appraisal services. Had Lehman hired a firm providing valuation and appraisal services, then it would have been able to point to its independent valuations.

Its reliance on TriMont provided Lehman with property-level data and information about the overall value of a development and status of the project, upon which Lehman’s staff relied. TriMont also provided the collateral value eight months after Lehman had made its investment, and annually thereafter, using two broad approaches: historical cost-based valuation and market-based methods applying that method to 228 positions in the second quarter of 2008 and market-based methods for about 245 positions. The Examiner notes that several Lehman employees stated that TriMont’s data very often contained errors.

Late in 2007, Lehman decided to abandon its Cap*105 capitalization method and to move to the discounted cash flow method, leading to IRR (internal rate of return) models to provide the discount rate. When the discount rate is applied to all future expected income and capital flows, it equates the price with the present value of those discounted income flows. However, because there were so many delays in rolling out the IRR models, staff had to rely on collateral values based on Cap*105, and when real estate values began to fall in 2007, this led to the over-valuation of assets.13 Because the method simply calculated current capitalization and added a 5 per cent premium, it could never capture the fall in value, when property values throughout the market began to decline.
The IRR models were the preferred model for the PTG, because it meant that collateral could be valued under a discounted cash flow method. The delays meant that, by the third quarter of 2008, the discounted cash flow method did not apply to all of Lehman’s PTG book, but only to a substantial part of it. The method had been introduced on a rolling basis. When applied, it had resulted in lower estimates of collateral values and showed that material write-downs were appropriate for a significant number of PTG assets.¹⁴

The Uniform Standards of Professional Appraisal Practice (USPAP) reported in its 2008–9 edition that the discounted cash flow method (DCF) was an accepted analytical tool, which had become more widely employed when appraisers were able to automate the process. However because it is profit-orientated and dependent on the analysis of uncertain future events, USPAP warns that ‘it is vulnerable to misuse’, and sets out various requirements to prevent that from happening. USPAP points out that the DCF method was useful for the valuation or analysis of proposed construction, land development condominium development or conversion, rehabilitation and income-producing real estate of all kinds. By early 2008, USPAP could report that DCF was becoming the required method for, amongst others, asset managers, portfolio managers and underwriters, all the skills and services that TriMont purported to offer.

TriMont eventually provided details of its revised valuation methodologies in January 2008, but throughout 2007 and 2008, TriMont made ‘substantial and extensive errors’ and had ‘weak controls’ for valuing land development. The firm’s staff were apparently unable to learn from their mistakes, which they repeated month after month. TriMont asset managers varied widely in ability, and ‘some had become too close to the developers, such that asset managers were not reporting on deteriorating developments, preferring to rely on the developer’s assurances that the project would be a success.’¹⁵

The IRR approach was being rolled out. It was applied to SunCal in 2007. There were many delays, and the company missed several deadlines in 2007 and 2008. Inadequate or erroneous data continued to be a serious problem. As late as March 2008, a PTG consultant emailed TriMont to point out that the Cap*105 method was ‘worthless’.¹⁶ The Examiner found that by the second quarter of 2008 about one-third of the total PTG portfolio still relied on the Cap*105 method.

Yet, if the DCF method was being widely used by asset and portfolio managers, as well as appraisers, TriMont should not have had so much difficulty in developing it. The company should have been able to identify and record the right data. Historical cost-based valuation methods were used for about 30 per
cent of the positions in the PTG portfolio in the second quarter of 2008. Even as late as July 2008, many positions were valued relying on Cap*105 (or Cap*100), which meant that they were overvalued. The Examiner concluded that

there is sufficient evidence to support a finding that the PTG business desk used its judgement to conclude that it should not use many of the values produced by TriMont when it was replacing Cap* 105 with IRR models ... In August 2008, Lehman's collateral values were $1.7bn higher than TriMont's collateral values.

The Archstone purchase, completed on 5 October 2007, is covered in Chapter 4, but it is important to recap some of the details. With regard to the acquisition of Archstone with Tishman Speyer, Lehman’s plan was that the two companies would each contribute $327m. of permanent equity. Lehman would then commit the remainder of the capital, consisting of $3.7bn of bridge equity and $17.2bn of debt. Lehman expected to sell $9.2bn of properties at closing, and Archstone would use these funds to repay a portion of the acquisition financing which Lehman and its partner banks would provide.

Lehman also expected to sell an additional $9–11bn of debt before closing. In general, its expectations of selling debt and those regarding the income streams from apartments were over-optimistic, at the very least. Nevertheless, when the purchase was closed, the transaction was valued at $22.2bn, which was partly financed with debt and equity capital provided by Bank of America Strategic Ventures Inc, Barclays Capital and their respective affiliates. This meant that the Bank of America and Barclays were aware of the way in which they valued their investments at the time, which may well explain why both banks did not accept Lehman’s valuations.

Two other familiar figures also played a part. Fannie Mae purchased a $7.1bn credit facility, secured by 105 multi-family properties. Freddie Mac executed a $1.8bn structured transaction that provided new financing for 32 multi-family properties across the country. David Worley, senior manager of risk management at Fannie Mae stated that ‘Fannie Mae is pleased to serve as a constant and reliable source of liquidity in today’s ever-changing capital markets’. Freddie Mac added that it was a great example of ‘Freddie Mac’s capacity to effectively and quickly serve as a reliable source of funding in all market environments’. Just under a year later, Fannie Mae and Freddie Mac would collapse, followed within a few days by Lehman.

What is interesting about this array of partners is that before closing, they must have known that Lehman’s original expectations for the sale of properties
by Archstone and the expected profits would not be realized. Despite that, by July 2007, the commitments for debt and bridge equity were 28 per cent for Bank of America and 25 per cent for Barclays. Fannie Mae and Freddie Mac’s involvement ‘confirmed the underlying soundness of the acquisition’.\(^{18}\) All of this indicates that Barclays and Bank of America, and no doubt others in Wall Street as well, were aware that Lehman’s valuations were unreliable, and that this meant that none of them were inclined to buy Lehman in September 2008. They already knew, or at the very least strongly suspected, that Lehman had over-valued Archstone, as indeed Barclays and Bank of America may have done as well. At the time of its collapse Lehman had a 47 per cent stake in Archstone and the two banks had a combined 53 per cent stake, which presumably they did not seek to sell in a market in which multi-family real estate prices had also collapsed. After court cases, which prevented the sale to Equity Residential, they sold their stakes to Lehman for $1.58bn in an improving market in May 2012.

**Fair Value Measurements Standard**

The Financial Accounting Standards Board (FASB) issued its Fair Value Measurements Standard (SFAS 157) in September 2006, which Lehman adopted in the first quarter of 2007. The Standard itself was adopted to deal with the limited guidance previously available for applying fair value measurements. The definition of ‘fair value’ retains the concept of ‘exchange price’ found in the earlier definitions, but clarifies it. ‘The exchange price is the price that an orderly transaction between market participants to sell the assets or transfer the liability in the market in which the reporting entity would transact for the asset or the liability, that is, the principal or the most advantageous market for the asset or liability.’\(^{19}\) Fair value is a market-based measurement, which should be assessed based on the assumptions that market participants would use in pricing the asset or liability. It refers to the ‘exit price’, not the ‘entry price’, which is the price that would be paid to acquire an asset or received to assume a liability.

Further, according to the revised standard, the fair value measurement should be determined based on the assumptions the market participant would use. It favours the risk-averse, sceptical buyer, as opposed to the optimistic asset owner. The market-based assumptions must include assumptions about risk and the adjustments for risk, as well as ‘assumptions about the effect of a restriction on the sale or use of an asset, as well as the risk that the asset will turn out to be non-performing’.
The definition of fair value for accounting is straightforward enough: it is the ‘price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date’. It applies to a particular asset or liability and so the measurement of fair value has to take into account the specific asset or liability and of its sale in the principal market or the most advantageous market. SFAS 157 sets out three levels of information and techniques to measure fair value. Level 1 refers to active markets in which the transactions for the asset or liability occur frequently and in sufficient volume to provide pricing information regularly. The problems arise when the principal market is inactive or when there are no purchasers for the asset or liability.

In the event that Level 1 information is not available, then SFAS 157 requires that the models use observable inputs, to develop Level 2 information. A wide range of information should be used to estimate the value, including quoted prices for similar assets or liabilities in other markets. This may include markets that are less active, or other information such as credit risks, default rates, volatilities, interest rates and yield curves observed over time. Many other factors may be taken into account, such as the asset's condition or location, its similarity to other assets or liabilities, and the volume and level of activity in the markets.

Level 3 is much more difficult, as it is the attempt to value an asset or a liability for which there is no market and thus no observable inputs. In this situation, the company must use all the information available, including assumptions made by market participants, and the company's own valuation models. This approach can lead to 'highly variable results', which means that almost every estimate of fair value requires significant judgement. When Level 2 inputs have to be used, fair value accounting offers some discretion to management, although observable inputs are objectively verifiable. However, with Level 3, management has considerable discretion and the ability to use its own models, and objective verification becomes very difficult, if not impossible. Nonetheless, there should be sufficient information provided with the models used to be able to assess their quality.

Not surprisingly, the Financial Accounting Standards Board (FASB) received requests for further guidance on the valuation of assets in a market that formerly had been active but no longer is so. Once again, the FASB accepted that this required the use of 'significant judgement' based on the reporting company’s ‘own assumptions about future cash flows and appropriately adjusted discount rates is acceptable, including risk adjustments that market participants would
make for non-performance and liquidity risks. Broker or pricing services might also be an appropriate input. This guidance was issued by the FASB on 10 October 2008. It was too late to be of any assistance to Lehman. It was followed by further guidance at the behest of Congress and as a result of an extremely detailed critique by the SEC.

Mark-to-market and the collapse of Lehman Brothers and other banks

The Emergency Economic Stabilization Act (EESA) was signed into law on 3 October 2008, almost three weeks after the collapse of Lehman. Section 133 of the Act required the Securities and Exchange Commission to carry out a study of mark-to-market accounting standards set by the Financial Accounting Standards Board (FASB), in SFAS No 157, Fair Value Measurement. The study was especially important, since claims were being made, not only in America, but in Europe as well, that mark-to-market accounting led to increased volatility in the markets. It was also claimed that it led to inappropriate write-downs of assets held by banks and other financial institutions, mostly because these write-downs were the result of inactive, illiquid or irrational markets. The values identified arguably did not reflect the underlying economics of securities. Not only the financial institutions were making such claims, but they were also voiced by politicians as well, pressing for the suspension or even the abandonment of such rules. The sternest critic of fair value accounting at that time was William Isaac, former director of the FDIC, who when addressing a conference on 29 October 2008, stated: ‘I gotta tell you that I can’t come up with any other answer than that the accounting system is destroying too much capital and therefore diminishing bank lending capacity by some $5 trillion. It’s down to the accounting system and I can’t come up with any other explanation.’

On the other hand, the SEC reports that market participants including investors valued the transparency of the financial information for the public provided by mark-to-market accounting. Removing it would weaken investor confidence, which would lead not only to instability in the markets, but could freeze the markets. By 2008, many had woken up to the fact that the root causes of the crisis lay in poor lending decisions and incompetent risk management. The SEC study analyses the possible linkages between fair value accounting and bank failures which occurred during 2008. The SEC staff selected 30 issuers, including banks, insurance companies and broker-dealers, which covered
75 per cent of the financial institution assets, totalling over $135bn for the first quarter of 2008.

The aim was to examine the effects of fair value accounting and SFAS 157 on their financial statements, comparing financial information at the end of 2006 (when SFAS 157 and 159 did not apply) and at the end of the first quarter, 2008 to show the progression and changes in fair value over time, as applied to assets, liabilities, equities, income statements and recognized impairments. The study had a particular focus on Level 2 and Level 3 assets and liabilities. The exhaustive study was extended to include the causes of decline in net income for the financial institutions, showing that this was not due to the impact of mark-to-market, since its application was only relevant to a relatively limited part of the income statements studied. The SEC staff concluded that ‘the net income for banking, credit institutions and the Government Sponsored Enterprises (GSEs) was most significantly impacted by the increase in the charge for provision for loan losses’, a historical cost concept, as the provision for loan losses is based on ‘incurred’ losses. ‘Losses stemming from the lending activities of banks had a profound effect on all financial institutions in 2007–2008’ and the losses captured in the fair value rules flowed from that.23

Others have supported the SEC’s argument, emphasizing what others may have been unwilling to stress. The crisis started when house prices declined and delinquency and default rates increased. Starting in 2007, declining house prices, defaults by subprime borrowers, foreclosures, cases of mortgage fraud and rating downgrades created major problems for mortgage-backed securities, and especially for complex mortgage-based structured instruments. Banks and investors knew that the housing bubble had burst and what the implications might be for the assets they held. Inevitably, investors were nervous about the value of the banks’ assets, just as the banks were nervous about each other’s. Uncertainty and information asymmetry dried up the refinancing and repo markets, which were crucial for investment funds, investment banks and some large bank holding companies. Since the business model of investment funds and investment banks is based on market values, fair value accounting is a necessity. Even if it were not, investors would not have been impressed with historical cost accounting, the main alternative, either.

However, the authors of the SEC report and others, such as Christian Laux and Christian Leuz, argue that fair value accounting did not contribute to the financial crisis, because its application to banks’ financial statements was limited. Laux and Leuz point out that ‘many banks with substantial real-estate exposure and large trading portfolios used cash-flow models to value their
mortgage-related securities by the third or fourth quarter of 2007.\textsuperscript{24} Hedge funds and ‘special investment vehicles’ saw a huge outflow of capital in mid-2007. As a consequence, Bear Stearns, BNP Paribas and others stopped withdrawals and refused redemptions of their investment funds, arguing that it was impossible to value the assets in these funds, as there were ‘just no prices’ for some of these securities. These actions were also taken because the funds had been largely financed with short-term debt and with falling asset prices, withdrawals created the threat of insolvency. Bailing out investment funds by providing guarantees and secured loans did not save them, as was the case with Bear Stearns. Investors were anxious about the value of investment banks’ assets, and that would have been the case even if the assets had been recorded at historical cost.

Laux and Leuz point out that the complaint about fair value accounting would have to be that it forced the investment banks to report losses that were unrealistically large and driven by short-term uncertainty and lack of liquidity in the market. But the evidence suggests that asset values reported by three investment banks were too high relative to the price they could obtain if they sold them. That created the lack of trust which was the root cause of illiquid markets. Merrill Lynch sold $30.6bn of collateralized debt obligations backed by mortgages for 22 cents on the dollar, with a consequent pre-tax loss of $4.4bn. David Einhorn, Lehman’s fiercest critic, pointed out that the company wrote down its $339bn commercial real estate mortgage-backed securities by only 3 per cent, when the commercial mortgage index of AAA commercial mortgage-backed bonds fell by 10 per cent in the first quarter of 2008. The causes of the financial difficulties had much more to do with the quality and timing of their investments, use of short-term debt financing, high leverage and the declining value of the underlying assets, than to aggressive write-downs due to mark-to-market accounting.

Laux and Leuz point out that for the 31 bank holding companies that failed and were seized by US bank regulators between January 2007 and July 2009, loans accounted for 75 per cent of their balance sheets, and trading assets had an extremely limited role. Fair value accounting on either the balance sheet or the income statement does not apply to loans held for investment or loans held to maturity. As far as the available-for-sale securities are concerned, these are subject to fair value accounting but changes in value are only reported in ‘other comprehensive income’, if the bank can claim that it has the intent and ability to hold the assets until prices recover, so that the losses can be classed as temporary and the effects of fair value losses for income and regulatory capital can be avoided. The trading book, the only one all regard as being appropriate for fair
value, is also the only one for which large write-downs might have been too aggressive, at least as later seen with the benefit of hindsight. It is a difficult issue to settle but a comparison between investment grade risk and the equity markets suggest that prices in the former were not distorted, but that rests on the assumption that the equity market was not distorted either.

Mortgage-related assets were central to the financial crisis, but they were rarely classified by the banks as Level 1 assets, generally being classified as Level 2 or 3 assets, which gave the banks much more discretion in identifying their 'fair values.' JPMorgan reported that in the fourth quarter of 2008 the 'majority of collateralized mortgage and debt obligations, high-yield securities and asset-backed securities (were) classified as Level 3.' The 'problem' assets were largely marked to models, not to market. JPMorgan's position as a clearing bank for tri-party repos certainly put it in a strong position to see the way in which such securities were valued.

However, in response to the illiquid markets, pressure from Congress and the political fall-out both in the USA and in Europe, on 30 September 2008 the standard setters issued new guidance, designed to address the most immediately urgent fair value measurement questions. The guidance confirmed that management's internal assumptions regarding, for example, expected cash flows, could be used, in appropriate circumstances, to measure fair value when the relevant market does not exist. Multiple inputs from various sources might also provide the best evidence for fair value. Broker quotes may be an input, but are not enough if there is no active market and if the quotes do not result from market transactions.

Distressed or disorderly sales do not represent fair value, which only takes orderly transactions into account in assessing fair value. Whether or not a market is inactive is an issue that requires judgement, taking into account the number of bidders and the gap between the asking price and the bidding price. A similar exercise of judgement is required in determining if an investment is other than temporarily impaired, requiring details of the specific facts and circumstances of each investment, and the nature of the underlying investment, whether the security is debt, equity or a hybrid. Since fair value measurements and the assessment of impairment may require significant judgements, clear and transparent disclosures are critical to enable investors to make their own assessments of management's judgements. The FASB provided extensive discussion of the factors to be taken into account.

A few months later, the FASB issued further guidance for fair value measurements and impairments, called 'Determining Whether a Market is Not
Active and a Transaction is Not Distressed'. After an intensive programme of consultation with ‘virtually all of the investors expressing the need for greater transparency by banks,’ the FASB set out its requirements for significantly expanded and enhanced disclosures.25 The new guidance issued in April 2009, FAS 157-4, covers transactions which are not ‘orderly’ and seeks to clarify the way in which fair value can be assessed when the formerly active market for that debt obligation has become inactive. Once that has been decided, the company will have to do more work. The company must see if observed prices or broker quotes obtained represent ‘distressed transactions’. Other techniques such as discounted cash flow analysis may be used, as long as they meet the objective of estimating the orderly selling price of the asset in the current market.

FAS FSP 115-2 and FAS FSP 124-2 deal with the recognition and presentation of other-than-temporary impairments (OTTI) in order to address the different factors impacting the market value of certain securities. The fair value guidance has to be modified prospectively by the OTTI guidance, which may be applied to both existing and new investments held by a company at the beginning of the interim period in which the OTTI guidance is adopted. What the revised guidance requires the company to do is to determine from all the available evidence whether or not the market price is a forced liquidation or distressed sale, and, if so, the company does not have to use the market price to set fair value. That, however, only applies when the company can demonstrate that the market is not operating normally by demonstrating that various factors do not apply. These factors include the volume and level of activity in the market, price quotations not based on current information, no or hardly any new issuances and abnormally wide bid-ask spread or significant widening of the bid-ask spread, amongst others. Once an OTTI is determined for a debt security, the portion of an asset write-down attributed to credit losses may flow through earnings and the remaining portion will be reported in other comprehensive income.

The guidance sets out further factors to be taken into account, including the fact that the seller was in or near bankruptcy, or that it was a forced sale because of regulatory or legal requirements, or that the transaction price was out of line with other similar assets or liabilities. The OTTI guidance no longer required the company to state that it intended to hold the debt or security to maturity, but would only have to recognize the credit losses in earnings as other than temporarily impaired. Once again, there are many factors that the company would have to take into account, designed to show whether or not a credit loss existed, including, for example, adverse conditions specifically related to the security, such as the industry or industries within which the issuer operates, or
local conditions in a particular area of the country. Many did not think the guidance went far enough, and wanted to see further changes. Economic losses could not be reversed through earnings. With market losses booked against other comprehensive income, the company’s capital would still be depleted. In the immediate aftermath of the financial crisis, further changes were not made.

The point, however, is that the proposed changes in mark-to-market accounting had to be accompanied by complete transparency. The model used should ideally be described in detail, and the factors taken into account should be spelt out. Such an approach is often described as ‘subjective’. That in turn suggests that the choice of the factors taken into account is arbitrary. But it is not arbitrary if such transparency makes it possible for others to assess the model and the assumptions on which the model is based. It is then possible to judge whether or not the values assigned to the assets or the debts were reasonable or not. Transparency is essential to that process of assessment, but was clearly lacking at the time, so that it was not possible to assess the assumptions or the information on which a bank based its valuations. It was that lack of information that undermined confidence and increased volatility.

Lehman’s risk management processes

Lehman could have avoided so many problems if it had had proper risk mitigation and appropriate risk management techniques, had those been understood and applied consistently throughout the company. The company should have measured, monitored and managed liquidity risk and had accurate daily views of positions, values and liquidity measurement in place. Lehman would then have been able to value its assets even where difficult judgement was required in a way which the market would have accepted. It was, after all, perfectly clear that the value of both residential and commercial real estate was falling rapidly. As noted earlier, Lehman adopted a more aggressive business strategy in 2006, by committing its own capital to investments in commercial real estate, leveraged lending and private equity type investments, despite the fact that the first signs of the subprime mortgage crisis appeared in late 2006, and persisted even when the crisis became more obvious in late 2007. These investments such as SunCal and Archstone were long-term investments, but ones in which Lehman planned to recover at least part of its original investment in the near term. Lehman, in common with others in the market, and
government officials (including Chairman Bernanke), did not believe that the subprime mortgage crisis would spread. Dick Fuld, in particular, did not believe that commercial real estate investments would fall in price, but would continue to rise. Even when he recognized that prices were falling, he thought he would be able to weather the storm and come out on top, just as he had done in the past.

The Examiner pointed out that Lehman had ‘sophisticated policies, procedures, and metrics in place to estimate the risk that the firm could assume without jeopardizing its ability to achieve a target rate of return, and to apprise management and the board whether Lehman was within various risk limits.’ Madelyn Antoncic was Chief Risk Officer for Lehman Brothers until September 2007, when Lehman announced that from 1 December 2007 she would be replaced by Christopher O’Meara, who was then Chief Finance Officer. Antoncic moved to a new position as Head of Financial Market Policy Relations. Valukas reports that several Lehman employees did not believe that O’Meara had either the necessary technical proficiency or background in risk management, but the board and regulators considered that he had good managerial skills and Fuld considered him to be ‘more practical’ than Antoncic, which may be translated as meaning that he was unlikely to oppose taking on greater risks. Valukas’s interview with Antoncic revealed that she considered that she was being marginalized from early 2007, and did not participate in major decisions such as Archstone.

Shortly before her transfer, Antoncic gave a presentation, ‘Where Vision Gets Built,’ outlining Lehman Brothers’ approach to risk management. In her introduction, she described risk management as being ‘at the very core of Lehman’s business model, with a conservative risk philosophy, and effective risk governance being the unwavering focus of the Executive Committee.’ She added that ‘all risk metrics [are] within established limits’. The presentation details a complex structure in which market, credit and quantitative risk are integrated, and risk is minimized through geographical, industry, asset class and customer diversification.

She listed twenty committees overseeing risk-taking activities, grouped as management oversight committees, firm-wide transaction approval committees and business level transaction approval committees. The risk management function was independent from trading, with the reporting line being from the CRO to the Executive Committee to the Head of Strategic Partnerships, Principal Investing and Risk, who reports to the Chairman and CEO. The Global Risk Management Division consisted of several departments covering every aspect of
risk, from market risk to risk control and analysis. The Department employed 398 professionals, with 228 risk managers and 162 technologists. The breakdown of the staff showed that it included many highly qualified and experienced individuals, including former regulators. Antoncic described it as an integrated framework, taking into account the firm’s financial targets, its risk appetite (how much the firm was prepared to lose in a year from market, event and counterparty risk), risk equity (the economic capital the firm required to protect it against various risks augmented by capital requirements due to external constraints) and risk limits. The presentation then set out the familiar techniques used to assess risks and losses, such as value-at-risk (VaR), a measure of market risk, which is expressed as the ‘maximum amount that can be expected to be lost with a certain degree of certainty over a given time horizon’.

Other risks that were carefully considered included event risk, in which Lehman claimed to measure stress, and ‘gap risks’ which go beyond potential market risk losses. These ‘were measured using statistically measurable stress analyses which capture losses associated with, for example, defaults for sub-prime mortgage loans and property value losses on real estate’. The presentation provided more details of the way in which the company tackled a wide range of risks, including counterparty credit risks, derivatives exposure, its stress testing and its controls for hedge fund risk.

The key issue was Lehman’s attitude to risk limits. Lehman described its risk appetite framework as its primary expression of ‘risk tolerance’, designed to express the maximum amount of risk that Lehman could take, and the amount of money it was prepared to lose due to market, event and counterparty credit risk. Between 2007 and 2008, Lehman discussed the firm’s risk appetite figures with members of the board and reviewed its risk appetite calculations with the SEC on a monthly basis. This, according to Valukas, greatly impressed the SEC, which believed that ‘unlike its peer firms, [Lehman was able to manage its] market and credit risk . . . in an integrated fashion through their aggregation into a single measure called risk appetite in its Credit Risk Review, 2005’.

Lehman’s market risk management limit policy involved the ‘establishment and maintenance of a sound system of integrated market risk limits’, which was fundamental to Lehman’s risk management function. The policy was described as one of zero tolerance for ignoring those risk limits, with disciplinary action, including dismissal, being taken against individuals. Antoncic stated that the risk appetite limit is recommended by the Chief Risk Officer and approved by the Executive Committee and the board on an annual basis and is reviewed quarterly . . . limits are cascaded down to divisions, businesses and regions.
Trading desk heads further allocate limits to individual desks. Limits are monitored daily.

The most important and difficult limit was the overall firm-wide risk appetite limit, which was set by the Finance and the Executive Committee, later the Risk Committee. It was unclear whether any changes required the approval of the board or not, and what course of action would be taken by the Executive Committee if this limit was breached. In fact, the board was not informed about the changes in the overall risk limits or the way in which these changes were achieved. At the end of 2006, Lehman dramatically increased its risk appetite limits for 2007 from $2.3bn to $3.3bn and subsidiary limits also increased significantly. Antoncic, as CRO, objected, but was overruled. The Examiner notes that to justify the increased limit, Lehman changed the way it calculated the limit. If the same method had been used, the 2007 limit would have been several hundred million dollars lower. The full amount of the 2007 limit was used quickly and then exceeded. Lehman also abandoned the single transaction limit in 2006, because the firm considered it had lost significant opportunities, largely because the limit was lower than that of its competitors. It did not in any case apply to its commercial real estate deals.

Lehman conducted stress tests against a portfolio of risks designed to measure ‘tail risk’, a one-in-ten-year-type event, as required by the SEC. The requirement, however, seems to have been more honoured in the breach than the observance. Lehman’s senior management decided what should and what should not be included in the stress test. Furthermore, both Lehman’s Finance and Risk Committee and the board were not informed that many of the firm’s commercial real estate and private equity investments were excluded from its stress tests. Valukas records that the ‘omission was noted on January 29, 2008, when the Finance and Risk Committee received materials stating that real estate owned and private equity were excluded from stress testing’, and although the board received the revised disclosure, its significance was not drawn to the attention of the board. The board was not told that Lehman’s management had decided not to apply the single transaction limit to its leveraged loans, an important omission. The board had agreed the growth strategy but without the relaxation of the risk limits in order to facilitate the strategy being revealed to them; indeed, they were deliberately concealed.

Interestingly enough, the SEC confirmed that when Lehman informed them that the firm was in excess of its risk limits, their main concern was making sure that the limit excesses were settled in accordance with the firm’s own procedures.
The SEC did not believe that its role was to replace Lehman’s business judgement with its own. Lehman and the other CSEs were required to provide information to the SEC about the holding company and its affiliates, including information about its risk reporting policies and procedures, risk appetite and equity framework and limit monitoring. The SEC relied on Lehman to provide it with all the information it needed to assess the efficacy and accuracy of Lehman’s risk measurements and risk management, but the SEC did not carry out an independent audit of the company’s risk management framework and make sure it functioned effectively. The CSE programme also required Lehman to develop and maintain a market-based stress testing programme under which the portfolio were to be tested against hypothetical and historical stress test scenarios.

The impressive array of stress tests was in place to ascertain the potential financial consequences of an economic shock to its portfolio of assets and investments. It appears that the SEC ‘monitoring’ team looked at what was in place, but did not ask the key question: what happened if a proposed purchase or deal failed one or more stress tests? Was the proposed investment or business strategy abandoned if it was not going to be worth the risk? If not, why not? In fact, the purpose of such tests was not to impose a legal requirement on management not to exceed the limits, but simply to ensure that management considered the risks. Even so, the approach should have been seriously questioned by the SEC.

Lehman’s risk management integrated framework looked very impressive, and apparently fulfilled the SEC’s requirements for fully functioning risk management processes and stress testing. Every aspect of risk appeared to be covered. Large teams of well-qualified staff were employed. They were capable of using all the then relevant models to identify all the risks to which the firm was or could be exposed. It was well regarded in the industry as being one of the best systems, designed to ‘proactively identify, evaluate, monitor, control the firm’s market, credit and operational risks and develop risk-related policies, procedures, models and limits’.

**Did Lehman’s risk management work in practice?**

The first issue to be considered here is: did Lehman actually make use of the complex risk management structure it had put in place?

The value-at-risk models were widely used and well-regarded at that time. The inadequacies of these models were revealed by the financial crisis. Not only
did banks apply their internal models in different ways, but the models themselves did not capture the full extent of losses a bank might face in times of significant financial stress.

Furthermore, the market risk framework the regulators required was based on the assumption that trading book positions were all liquid, that is, banks could exit or hedge these positions over a ten-day horizon. “The crisis showed all too vividly that such an assumption was false. During 2008 and 2009, banks were forced to hold risk positions for much longer than expected, and incurred large losses from changes in values.”

The second reason was that regulators in the UK and USA were increasingly concerned that banks were misusing their internal risk models when they calculated the risk weightings for risky assets. Banks could easily manipulate the models to assign low risk weightings for risky assets in order to reduce capital requirements. However, these are concerns that also applied to many other banks besides Lehman, although Lehman did manipulate its risk measurements so that the value of its assets was increased. It is Lehman’s use of, or failure to use, its risk management procedures, which is the central question here.

Valukas sets out in detail the evidence that he obtained of the extent to which senior management disregarded its risk managers, risk policies and its risk limits, including removing Antoncic and Michael Gelband, head of the Fixed Income Division, because of their opposition to the management’s growing accumulation of risky and illiquid investments.

Even the Office of Thrift Supervision, a notoriously weak regulator, had questioned Lehman’s risk management and its commercial real estate investments:

Lehman’s commercial and real estate investment portfolio is very diverse with large holdings in the USA and Asia. As its largest single asset class, totalling $50.4 bn at May 31st 2008, the portfolio represents very substantial credit and market risk and is a major source of continuing concern among regulators and investors. Total real estate related exposure would reach nearly $60bn by including $9.5bn of corporate debt and equity and other real estate assets managed by GREG. Taking an outsized bet on real estate, the Firm’s exposure to the commercial real estate market is larger than its competitors despite its smaller size and may likely precipitate major management and board decisions regarding additional capital raises, sales of strategic business or the ultimate sale of the firm . . . fair value price discovery has been difficult for the company’s real estate commitments, given that Level 3 commercial loans and securities totalled.
Lehman's Valuation of Its Assets

$13bn or 63.1% of the $20.6bn total mortgage and asset-backed securities . . . 
At $22.7 bn real estate held for sale, an illiquid asset class, but not one which is fair valued by SFAS 157, exceeds mortgage loans and securities by a wide margin.34

The OTS also noted that there were major failings in the risk management process, with senior management deciding to make major real estate loans and investments and in 2007, significantly breaching established limits by making a very large commitment to the Archstone-Smith transaction. A cover note to the Executive Committee, by not referring to ‘a material breach of risk limits, implies that profit considerations trumped sound risk management practices.’ The OTS did not take any further action following this report, although as one of the supervisors of Lehman Brothers, it was entitled to do so.

The SEC did not question the application and use of the impressive array of stress tests, either. The Examiner reports that management regularly chose to disregard or overrule the firm's risk controls, but that this was not a ‘colorable’ offence under Delaware company law. They were self-imposed limits.

Lehman decided to regard the risk appetite limit as a ‘soft’ guideline. As Valukas points out, the company decided to override ‘concentration limits,’ even ‘single transaction limits’ on its leveraged loan and commercial real estate businesses, designed to ensure diversification by business line and counterparty. Because these limits were ignored, they were exceeded by margins of 70 per cent in commercial real estate and by 100 per cent with regard to its leveraged loans. Stress tests were carried out every month and presented to the regulators and the board, but its commercial real estate and private equity investments were left out, as were leveraged loans for a time.

The inclusion of Archstone and other commercial real estate from regular stress tests in the first half of 2007 might have led to a rejection of the $22bn Archstone deal; for example, one experimental stress test predicted losses of $7.4bn on the real estate and private equity positions that had been excluded, and only $2bn on previously included trading positions ($9.4bn in all), and another predicted losses of $10.9bn plus $2.5bn on positions already included. The stress tests were conducted long after the assets had been acquired. According to the Examiner’s report of his interviews with Mark Weber and Christopher O’Meara, the results of the tests were never shared with senior managers, although the tests had been carried out on 30 June 2008.

Once again, it appears that the regulators did not ask which items were included in the stress tests. Management did not have a regular and systematic
means of analysing the catastrophic losses that the firm could suffer from increasingly large and illiquid investments. Nor did Lehman stick to its balance sheet limits, designed to contain the overall risk of the firm and maintain the leverage ratio required by the rating agencies. That was concealed by the use of Repo 105, which took these assets off the balance sheet for a temporary period.\textsuperscript{35}

The result was that Lehman was able to raise its risk appetite limit (RA) from $2.3bn to $3.3bn in December 2006: in September 2007, the RA was raised again, to $3.5bn, because Lehman recognized that ‘it had been exceeding the firm-wide risk appetite on a persistent basis for some time', but it quickly exceeded that limit by $769m., so its RA was $4.27bn then, but it did not take any steps to correct that until January 2008, when the RA was increased to $4.0bn, backdated to December 2007.\textsuperscript{36} All this was in spite of the fact that Lehman advised both the SEC and the board that the risk appetite limit was intended to constrain its risk-taking. Clearly, Lehman did not take its RA seriously.

Between May and August 2007, Lehman removed some of its largest risks from its calculations of its risk exposures, in particular, probably its greatest risk, the $2.3bn bridge equity position in Archstone. Even when it was included in the company’s RA, Lehman continued to exceed its own limit for several months. Lehman did not attempt to reduce its balance sheet, which would have been an almost impossible task at that time, and instead raised its risk limit further. The Examiner’s assessment was that, given past success, senior management decided to go for profits, rather than restricting the risks they were taking to the risk levels their risk management team laid down. ‘They were confident making business judgements based on their understanding of the markets and did not feel constrained by the quantitative metrics generated by Lehman’s risk management system. These decisions raise questions about the role of risk management in a complex financial institution.’\textsuperscript{37} Once again, under Delaware company law, these would be classed as business decisions, however ill-founded, as they did not breach any fiduciary duties.

Lehman’s management informed the board clearly and on more than one occasion that the aim was to take on more risk in order to grow the firm, that this would result in taking on higher levels of risk, and that market conditions after July 2007 were hampering the firm’s liquidity. This information was sufficient to keep the board informed without misleading them. They did not have a legal duty to inform the board about the risk limits and the breaching of them, as these were only intended to guide management’s business decisions.
Consequently, the board was not failing in its duty to monitor the company’s risk-taking activities. Lehman’s corporate charter and Delaware company law protected the directors from personal liability based on their business decisions, since neither breached the duty of loyalty or good faith. Delaware law allows the board to rely on management reports, and they are protected by law when they do so. Dick Fuld and his management team considered that they would be able to deal with the changing market and the unfolding subprime crisis by pursuing a ‘countercyclical growth strategy’. They hoped to overcome adverse market conditions as they had done before, and emerge triumphant.