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Assessing Lehman's Solvency Prior to its Bankruptcy Filing

By Allen Pfeiffer and Michael Vitti, CFA

Lehman remains the largest American bankruptcy filing in history and demonstrated what could happen when a supposedly "too-big-to-fail" firm...fails. This article provides context for the overall market conditions and the dichotomy of views of Lehman at the time. This context is relevant for assessments of Lehman's solvency prior to its bankruptcy filing.

Shortly after Lehman's bankruptcy filing, the federal government pursued a bevy of bailouts and shotgun mergers to mitigate the effects of the burgeoning credit crisis. Nevertheless, equity indices plummeted. The decline in equity indices, which was not large for a recession prior to Lehman's bankruptcy, reached the lowest depths since the Great Depression shortly after Lehman's collapse.

There are conflicting views of Lehman's financial condition prior to its bankruptcy filing. On the one hand, its highly leveraged business was adversely affected by a "perfect storm" beginning in late 2007. This observation could suggest that Lehman became insolvent several months before its bankruptcy filing on September 15, 2008. On the other hand, Lehman

reported all-time high book values of equity and all-time low leverage ratios shortly before its bankruptcy filing. This observation could suggest that Lehman had a relatively strong capital position through the date of its bankruptcy filing.

Lehman's Need to Maintain Market Participants' Confidence

Lehman was highly leveraged. Lehman often had \$30 of liabilities for every \$1 of equity on a "gross" basis.¹ Lehman often had \$16 of liabilities for every \$1 of equity on a "net" basis.²

Lehman compounded the risks of high leverage by financing long-term assets with short-term debt. The immediate cause of Lehman's liquidity crisis was

1 The "gross" leverage ratio compares total assets with total equity on a book value basis. Lehman had \$691.1 billion in total assets and \$22.5 billion in total equity as of fiscal year-end 2007. Thus, Lehman's gross leverage ratio was 30.7x ($\$691.1 / \$22.5 = 30.7x$) at the time.

2 The "net" leverage ratio compares net assets with tangible equity capital on a book value basis. Net assets are lower than total assets because it excludes certain assets. Tangible equity capital was sometimes higher than total equity because it characterized junior subordinated notes as equity. Lehman had \$373.0 billion in net assets and \$23.1 billion in tangible equity capital as of fiscal year-end 2007. Thus, Lehman's net leverage ratio was 16.1x ($\$373.0 / \$23.1 = 16.1x$) at the time.

Continued on Page 2

Valuation for the Litigation Practitioner

License or Permit Intangible Asset Analyses

By Robert F. Reilly, CPA

Forensic analysts (analysts) are often called on to estimate the value of intangible assets for litigation and other controversy reasons. In addition, analysts may value intangible assets for transaction, taxation, financial accounting, corporate planning, or other reasons. In regard to litigation, analysts are also called on to measure the economic damages to intangible assets related to breach of contract, breach of fiduciary duty, lender liability, bankruptcy, infringement, eminent domain,

tortious interference, fraud and misrepresentation, and other claims. Analysts perform such valuation and damages analyses on many different intangible asset categories (or types).

Analysts may apply all generally accepted intangible asset valuation approaches (i.e., Market, Income, and Cost) in the analysis of licenses and permits. This discussion presents an illustrative example of an Income Approach and a Cost Approach analysis of licenses and permits.

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PUBLISHER

Litigation Forensics Board of NACVA
Sponsors of the MAFF Designation
5217 South State Street, Suite 400,
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(801) 486-0600 • www.NACVA.com

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The *National Litigation Consultants' Review* (NLCR) is published online by the Litigation Forensics Board of the National Association of Certified Valuators and Analysts (NACVA), 5217 South State Street, Suite 400, Salt Lake City, UT 84107-4812, sponsors of the Master Analyst in Financial Forensics™ (MAFF™) designation. The NLCR is free to the holders of the MAFF designation, complimentary for attorneys, and free to NACVA members. To find out how to receive the NLCR, contact NACVA's Director of Member Services at (NACVA1@NACVA.com). All other correspondence can be sent to the Managing Editor at the above address.

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the inability to refinance very short-term repurchase agreements that had to be continually refinanced.

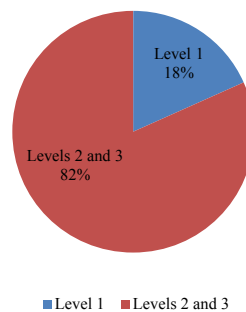
Thus, Lehman was dependent on market participants' confidence. Confidence in Lehman was dependent on (among other things) the perceived reliability of its reported asset valuations. This dependency was due to Lehman's high leverage, which some may say left a molehill-sized amount of equity to support its mountain of assets.

Perhaps nothing demonstrates the notion that a firm's prospects can *quickly* deteriorate than Lehman's rapid demise. Lehman reported record revenues and profits in FY 2007. Nevertheless, Lehman collapsed shortly after it reported its Q3 2008 results as market participants questioned the amount of equity in the business.

Overview of Lehman's Balance Sheet and Fair Value Disclosures

Lehman had a massive balance sheet (over \$600 billion in assets) with a significant amount of hard-to-value assets. Lehman needed to value many of these assets on a recurring basis for financial reporting purposes.³ As shown in Figure 1, the overwhelming majority of these assets were valued through the use of SFAS 157 (now ASC 820) level two and level three inputs.⁴ Thus, Lehman personnel used a substantial amount of judgment to value these assets.

Figure 1: Level of Input for Fair Value Assessments⁵



Tension Between Relevance and Reliability

The rapid reporting of Lehman's massive balance sheet⁶ demonstrates the tension between two laudable qualities (relevance and reliability) within financial reporting's conceptual framework.⁷ On the one hand, it is logical for financial reporting standards to require fair value disclosures. These amounts are clearly more relevant than historical cost-based val-

ues. It is also logical for valuations to be disclosed as soon as possible because valuations can quickly become stale. Thus, rapidly reporting the fair value of Lehman's financial inventory was *highly relevant*. On the other hand, *it can be difficult to reliably value* these hard-to-value assets. This is true even if practitioners have 'all of the time in the world' to perform the valuations. It is especially true when the valuations (as they were with Lehman) are finalized shortly after a quarter-end.

Process Used by Lehman to Determine the Fair Value of its Financial Inventory

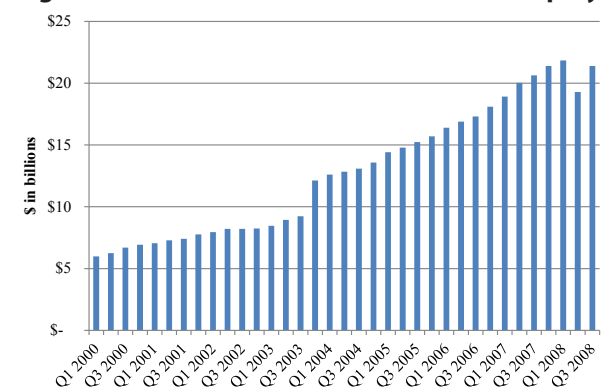
Lehman used a three-step process to arrive at fair value determinations:⁸

1. The Business Desk for each asset-class valued the positions.
2. The Product Control Group reviewed the Business Desk's valuations for reasonableness.
3. Disputes between the Business Desk and Product Control Group were elevated to senior members of the firm.

Book Value of Lehman's Equity

The book value of equity is often relevant for firms such as Lehman because their balance sheet already reflects most of their financial inventory at fair value.⁹ Thus, the fair value of equity is typically greater than the book value. (See the price-to-equity multiple discussion below.)

Figure 2: Book Value of Lehman's Common Equity



As shown in Figure 2, Lehman's book value of common equity increased to Q1 2008. The decline in Q2 2008 was the first time Lehman reported a net loss during its 14-year history as a publicly traded company.¹⁰ Lehman's common equity increased during Q3 2008, despite its reporting of another net loss,

3 For example, \$249 billion of Lehman's GAAP-based assets as of May 31, 2008, were measured at fair value on a recurring basis. See Lehman's Q2 2008 10Q at [fn: 4] and Examiner Report at 204 [fn: 703]. The Examiner Report is available at <http://jenner.com/lehman>

4 Level one inputs are quoted prices in active markets for identical assets or liabilities. Level two inputs are observable inputs other than quoted prices in active markets for identical assets or liabilities. Level three inputs are unobservable inputs. [Examiner Report at 203.]

5 Data from Lehman's Q2 2008 Form 10Q, [fn: 4]. The 82% for Levels 2 and 3 was comprised as follows: 65% for level 2 and 17% for level 3 inputs.

6 Lehman reported its financial results within 10 days of its Q2 and Q3 2008 quarter-end dates.

7 Statement of Financial Accounting Concepts No. 2 states, "[r]elevance and reliability are the two primary qualities that make accounting information useful for decision making...Though, ideally, the choice of an accounting alternative should produce information that is both more reliable and more relevant, it may be necessary to sacrifice some of one quality for a gain in another (emphasis in original)." SFAS No. 2 was superseded (in 2010) with SFAS No. 8, which, among other things, replaced the term *reliability* with *faithful representation*.

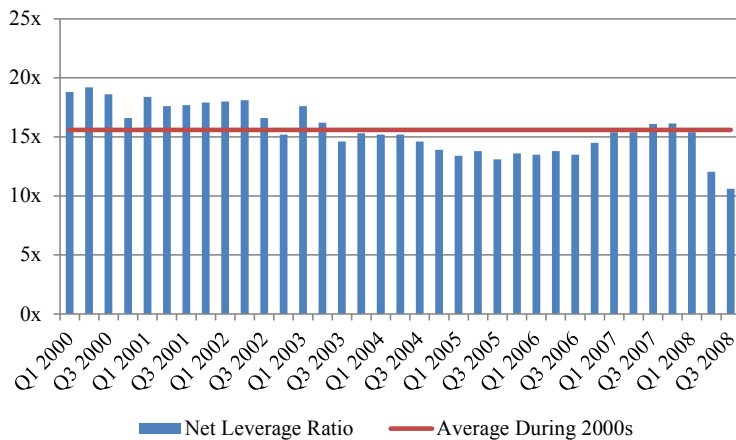
8 Examiner Report at 211 ("Across all asset classes, the values Lehman reported were those determined by its business desk, subject to revision pursuant to a price testing process performed by its Product Control Group.") Examiner Report at 241-265 (section titled "Senior Management's Involvement in Valuation.")

9 A large portion of Lehman's assets that were not carried at fair value were low-risk assets (e.g., repurchase and resale agreements) in which book value often approximates fair value.

10 Examiner Report at 10.

Continued on Page 3

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Figure 3: Lehman's Net Leverage Ratio

because it raised new common equity in an amount that exceeded the net loss during the quarter.

Taken at face value, Figure 2 suggests that Lehman was thriving at the end of Q3 2008. Nevertheless, Lehman filed for bankruptcy less than one week after its Q3 2008 financial results were publicly released.

The dichotomy between the trend in Figure 2 and Lehman's swift collapse was predicted by then Treasury Secretary Henry Paulson. Mr. Paulson privately told Lehman's CEO, Richard Fuld, after Lehman reported a net loss in Q2 2008, "If Lehman was forced to report further losses in the third quarter without having a buyer or a definitive survival plan in place, Lehman's existence would be in jeopardy."¹¹ Lehman reported a net loss in the third quarter, did not have a buyer or definitive survival plan in place, and filed for bankruptcy. Thus, reporting net losses for two quarters in a row may have been more relevant to market participants than Lehman's historically high level of reported equity on a book value-basis.

Lehman's Net Leverage Ratio

As shown in Figure 3, Lehman's net leverage ratio was at a historic low shortly before it filed for bankruptcy. A low leverage ratio, on the surface, suggests Lehman's financial condition was historically strong. Lehman historically targeted a ratio below 20 times (x) in order to maintain its single A credit rating.¹² Reporting low net leverage ratios was important because "Lehman knew it had to report favorable net leverage numbers to maintain its ratings and confidence."¹³

Some of the improvement in Lehman's net leverage ratio was illusory. For example, Lehman's net leverage ratio would have been 13.9x instead of 12.1x at the end of Q2 2008 if the effects of Repo 10 had been removed.¹⁴

Nevertheless, Lehman's net leverage ratio (even after removing the illusory effect of Repo 105) was below its 20x historical targeted cap, and 15x historical average, in the quarters leading up to its bankruptcy filing. Thus, the trend in Lehman's net leverage ratio also did not indicate that Lehman was on the brink of bankruptcy.

This is a case where absolute analyses are more relevant than relative analyses. Lehman's leverage may have been at historically low lev-

els, but its absolute amount of leverage was still substantial. Lehman had greater than \$10 of liabilities for every \$1 of equity under the most favorable interpretation of Lehman's leverage (i.e., using the "Net" Method without removing the effects of Repo 105). Thus, there may have been insufficient equity "cushion" for Lehman to absorb incremental losses if market participants believed the reported value of its financial inventory was overstated.

Price-to-Book Equity Multiple

The relevance of Lehman's financial statement depends on the accuracy of the underlying data (e.g., fair value of financial inventory). If the underlying data and other disclosures were reasonable, Lehman's consolidated enterprise was likely solvent and adequately capitalized through August 31, 2008. Lehman's book equity was near all-time highs, its leverage was at all-time lows, and nobody contends that Lehman was insolvent in 2007 or previous years. Alternatively, Lehman may have been insolvent and/or inadequately capitalized before August 31, 2008, if the underlying data and/or other disclosures were unreliable.

There were competing views among contemporaneous market participants and Lehman employees regarding the reasonableness of Lehman's reported valuations of its financial inventory. Many market participants believed the valuations were inflated,¹⁵ whereas many of Lehman's employees believed the valuations were reasonable.¹⁶ Interestingly, some Lehman employees believed the assets were undervalued.¹⁷

The price-to-book equity multiple is a simple yet powerful way to shed light on this debate. This multiple provides insight into the market's assessment of the reported valuations. Thus, it can be used as Occam's razor, because it often requires relatively few assumptions to interpret its meaning within an order-of-magnitude.

Firms such as Lehman typically trade at a premium to their equity book value because:

1. They report most of their tangible assets at, or near, fair value,¹⁸
2. A going concern is often worth more than the sum of its tangible parts, and
3. The fair value of intangible assets is typically greater than the book value of these assets.¹⁹

Lehman's stock historically traded at a premium to its book value. The chart in Figure 4 shows the range of price-to-book equity multiples that Lehman traded at during each fiscal quarter between Q1

¹⁵ For example, the Examiner Report at 206 states, "[a]ccording to the SEC, one of the reasons that the market lost confidence in Lehman was that the market had little confidence in the asset values that Lehman was reporting." Also see the Examiner Report at 241 ("There had been high profile public criticism that Lehman had not properly marked down its asset values [during 2008].")

¹⁶ The examiner found that there was insufficient evidence to support the claim that senior management's involvement led to unreasonable valuations, or, in other words, that management drove asset inflation.

¹⁷ Certain senior managers were told they would not receive any bonuses in 2008. These senior managers had no incentive "to artificially prop up the values of [their] assets in 2008." Examiner Report at 242 [fn: 850]. Furthermore these senior managers had an incentive to take more mark-downs than required during 2008 to set the table for increased profitability (i.e., mark-ups from the artificially low carrying value) in future years when they might receive a bonus. Ibid.

¹⁸ Most of Lehman's assets could not experience valuation-related impairments without a corresponding accounting-related impairment. Thus, the book value of equity is often the floor value (on a fair value basis) of equity in firms like Lehman.

¹⁹ Most of Lehman's intangible assets were internally generated and thus not recorded on its GAAP-based balance sheet.

¹¹ Ibid.

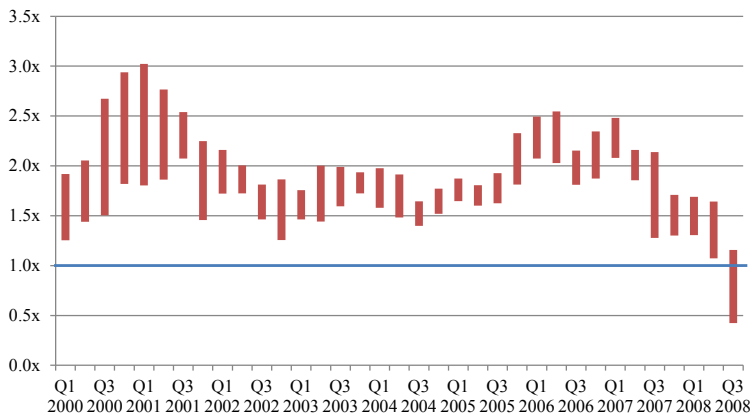
¹² Lehman's 10Q for the period ending May 31, 2001, states, "[c]onsistent with maintaining a single A credit rating, the Company targets a net leverage ratio of under 20.0x."

¹³ Examiner Report at 5-6.

¹⁴ Ibid. at 7. Repo 105 was an accounting device that artificially deflated the size of Lehman's balance sheet, which in turn artificially lowered Lehman's net leverage ratio.

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Figure 4: Lehman's Price-to-Book Multiple

2000 and Q3 2008.²⁰ Lehman's common stock traded at a quarterly range average, between 1.6x and 2.1x book value during this period.

Lehman's price-to-book equity multiple significantly deviated from its historical pattern during Q3 2008. Notably, Lehman's price-to-book equity breached the 1x barrier during this quarter. Lehman's common stock traded at levels during most of Q3 2008 that were less than the value recorded on Lehman's balance sheet as of the end of Q3 2008. This suggests a market perception that the book value of Lehman's financial inventory was inflated, or was not representative of its fair value for other reasons, during Q3 2008 (June 1 thru August 31).

Lehman's low price-to-book equity multiple during Q3 2008 could suggest that Lehman was insolvent at some point during that quarter. However, there is no specific multiple that indicates Lehman was insolvent, because the multiple will always be positive due to limited liability for shareholders.²¹ Instead, the examiner focused on a gross approach (enterprise value less debt) instead of a net approach (equity value) when assessing the parent company's solvency. This methodology yields an insolvency determination when the market's valuation of claims on the debtor's assets is low enough.

Interestingly, it is not definitively clear *why* the market's valuation of Lehman's equity during Q3 2008 was significantly less than its book equity even though book equity was based in large part on market-to-market values. Some practitioners may argue that the market believed Lehman overstated the fair value of its assets.²² Others may counter that the distressed state of Lehman's business during this time period created an intangible liability. For example, some believe that "the firm as a whole may have been seen as riskier than the sum of its individual assets."²³ The examiner highlighted both possibilities. Regardless of the reason, Lehman was clearly singled out as being worth less than its publicly-traded peers on a price-to-book equity multiple basis during this time period.²⁴

20 The data in Figure 1 for Q1 2000 thru Q4 2007 was obtained from Lehman's 10Ks. Data for 2008 was obtained from other sources. The multiples were computed as follows: market capitalization/book value of common equity. Market capitalization is based on the low and high stock price for each fiscal quarter and the number of common shares outstanding for each fiscal quarter. Book value of common equity is based on the average of the amounts as of the first and last day of each fiscal quarter.

21 A negligible value of equity is often referred to as "option value."

22 *Supra* [fn: 16].

23 Examiner Report at 1575.

24 *Ibid.*

Transition from Relatively Benign to Great Recession

At this point, it may be helpful to provide additional context for the broader market. Some readers may recall that the syndication markets were "virtually closed"²⁵ by late 2007 and remained "closed" or "dislocated" throughout 2008.²⁶ As a result, Lehman's "moving" businesses²⁷ (i.e., operations that originated positions with the intent to quickly syndicate them) became more like its "storing" businesses (i.e., operations that retained positions for a significant length of time).²⁸ Lehman personnel called the situation a "perfect storm,"²⁹ a "market implosion,"³⁰ and a "capital markets meltdown."³¹

Some readers may believe this background shows that Lehman was insolvent by late 2007 or early 2008. By extension, these readers believe the fair value of Lehman's assets was overstated on its financial statements at this time. Simply put, the effect of a "capital markets meltdown" on a highly leveraged balance sheet is often insolvency.

Nevertheless, Lehman reported historically high book values of equity and historically low net leverage ratios at this time. Given this background, some may question why Lehman's common stock traded above book value through Q2 2008 and why Lehman was able to raise new money in the form of common stock at the beginning of Q3 2008.

The contradiction between the narrative (shut down in markets) and contemporaneous leverage ratios (at all-time lows for Lehman) requires an analysis of the overall market performance during this time period. We focus on the Standard & Poor's 500 (S&P 500) and Dow Jones Industrial Average (DJIA) indices because they reflect valuations of equity securities in the broader market and the data is readily available across many decades.³²

It is self-evident that recessions are generally bad times for the economy. Equity typically declines during a recession.

Some argue the recession that began in December 2007 was worse than the average recession from the beginning. In some ways that is true. The rapid decline in certain residential markets supports this position.

However, the recession that began in December 2007 was not unusual in some respects prior to Lehman's bankruptcy filing on September 15, 2008. The largest decline (start to through) between December 1, 2007, and September 12, 2008,³³ was 17.5 percent for the S&P 500 index and 17.7 percent for the DJIA index.³⁴ As shown in Figure 5, these amounts were less than the median decline for

25 *Ibid.* at 224 and 268.

26 This is not hyperbole. We will use the CMBS market to provide context. The quarterly issue of U.S. CMBS fell from over \$75 billion in the second quarter of 2007 to approximately \$6 billion per quarter during Q1 and Q2 2008 to zero in Q3 and Q4 2008. Examiner Report at 231 [fn: 800].

27 Examiner Report at 266.

28 *Ibid.* at 266 [fn: 976].

29 *Ibid.* at 227.

30 *Ibid.* at 372.

31 *Ibid.* at 229.

32 Lehman was in the S&P 500, but not the DJIA, prior to its bankruptcy filing.

33 Lehman filed for bankruptcy on Monday, September 15, 2008. Thus, we used the market index values through the preceding Friday, which was September 12, 2008.

34 Market indices are typically leading indicators that increase prior to the end of a recession. It is for this reason that we focused on the largest decline *during* a recession instead of measuring the change in the indices between the start and end of a recession. We did not use a starting point that preceded the recession under the assumption that any particular data point (e.g., six months prior) may be deemed to be arbitrary and not increase the utility of the analysis.

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Figure 5: Largest Decline in Indices During Recessions (Through Sep. 12, 2008)³⁵

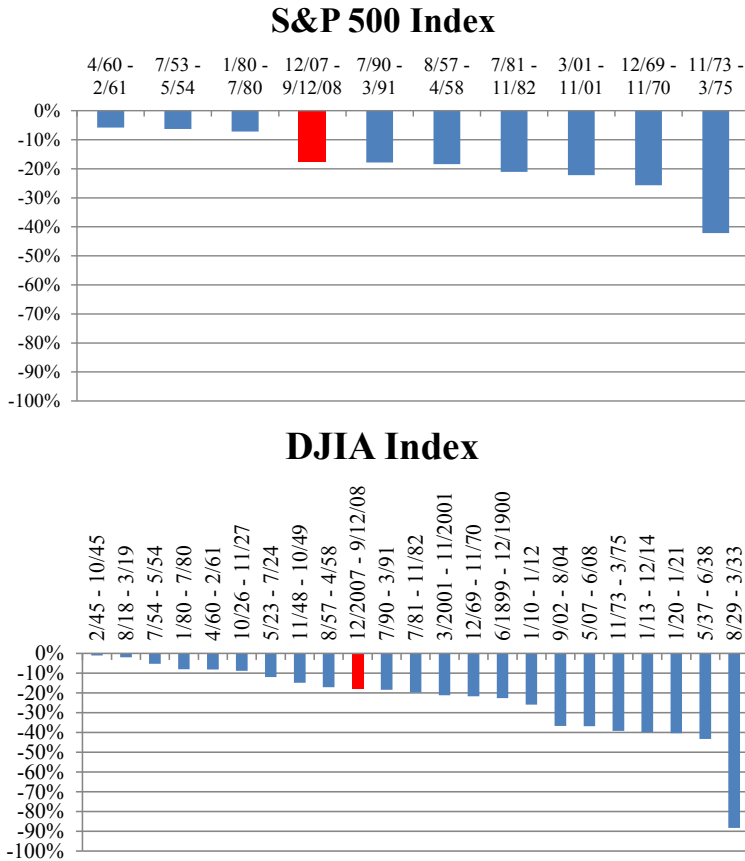
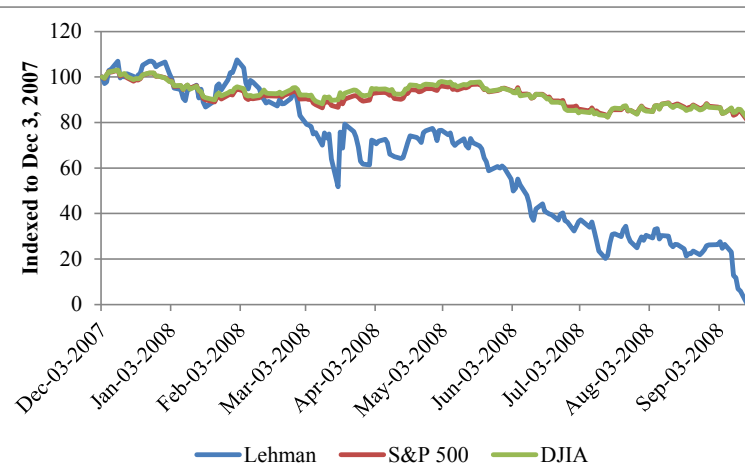


Figure 6: Comparison of Prices from Dec. 3, 2007, through Sep. 12, 2008

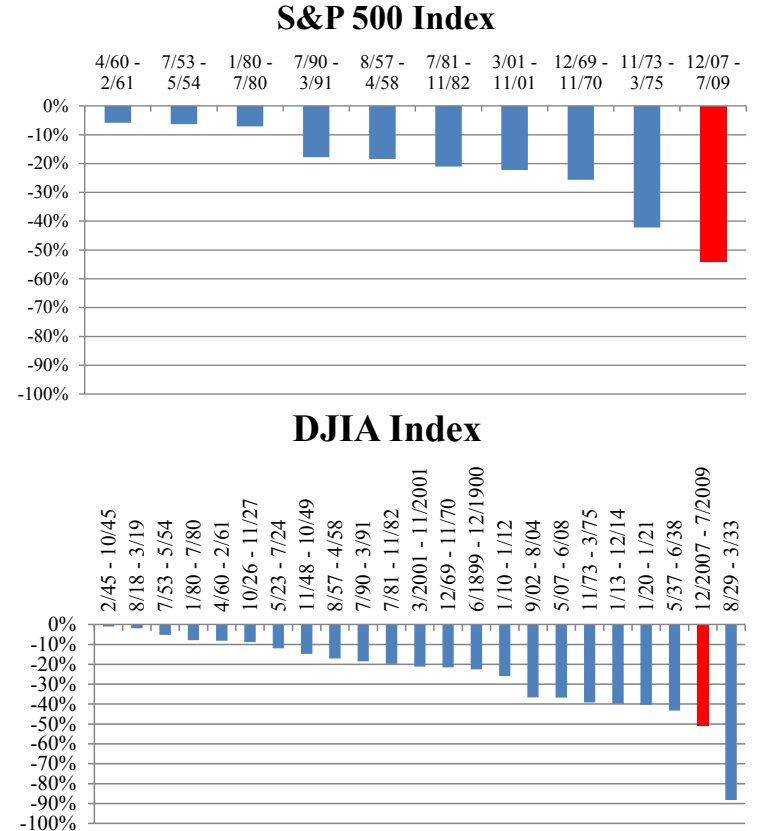


these indices during previous recessions that lasted for, on average, 12 months after WWII.³⁶ Thus, the effect of the “capital markets meltdown” on market participants’ perception of the overall economy was relatively mild when viewed through this prism.

³⁵ These charts contain the largest declines for every recession that occurred during periods when data is available for the S&P 500 or DJIA indices.

³⁶ Dates for recessions were obtained from the National Bureau of Economic Research. The dates were retrieved from: <http://www.nber.org/cycles/cyclesmain.html> (visited on April 9, 2014). Data for the S&P 500 index goes back to January 3, 1950. Data for the DJIA goes back to May 26, 1896. It is noteworthy that the duration of the recession through September 12, 2008, was approaching the length of the average recession since WWII.

Figure 7: Largest Decline in Indices During Recessions (Through Today)³⁷



Lehman was nevertheless a highly leveraged firm that held large positions in assets that became increasingly illiquid. Thus, one might expect Lehman’s stock to underperform relative to these indices during this period. As shown in Figure 6, this was in fact the case as Lehman’s underperformance began in Q2 2008 (after Bear Stearns’ near collapse) and became significantly more pronounced during Q3 2008.³⁸

The relatively normal (in this context) recession morphed into the so-called Great Recession *after* Lehman filed for bankruptcy on September 15, 2008. The largest decline (start to through) during the Great Recession (which began in December 2007 and ended in July 2009) in the S&P 500 and DJIA indices exceeded 50 percent. This was the largest decline during a recession in the history of the S&P 500 index (data goes back to 1950) and the second largest in the history of the DJIA index (data goes back to 1896). As shown in Figure 7, the only decline that was greater than the Great Recession occurred during the Great Depression.

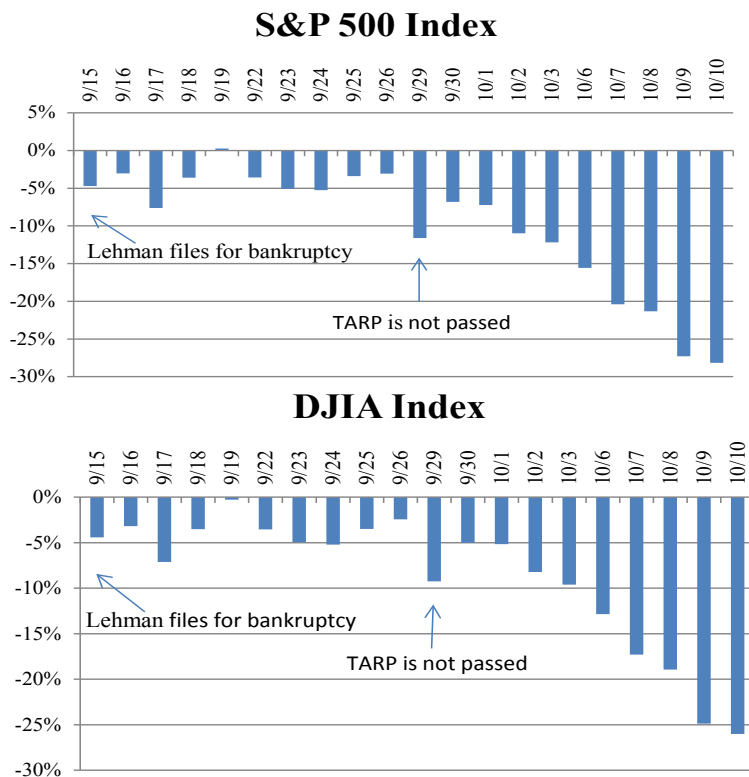
Most of the incremental decline that turned the relatively benign recession into the “Great Recession” occurred within a month after Lehman filed for bankruptcy. It was a “tale of two halves,” as there was very little net decline during the first two weeks but a dramatic decline in the next two weeks. The lack of a large decline during the first half of the month was presumably due to the assumption that other “too big to fail” firms would not be allowed to fail. The House

³⁷ These charts contain the largest declines for every recession that occurred during periods when data is available for the S&P 500 or DJIA indices.

³⁸ Several market participants shorted Lehman’s stock during 2008. Perhaps the most vocal of these market participants was David Einhorn, who publicly questioned the reliability of Lehman’s fair value disclosures. Examiner Report at 205.

Continued on Page 6

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Figure 8: Cumulative Decline Since Sep. 12, 2008

of Representatives' rejection of the proposed \$700 billion Troubled Asset Relief Program (TARP) on September 29, 2008, challenged that assumption.³⁹ As shown in Figure 8, the S&P 500 and DJIA indices declined by over 20 percent during the next two weeks. Some say that Lehman's collapse and its aftermath played a leading role in this massive loss of wealth during such a short time period.

This shows how a "typical" recession (when measured by equity indices) became the so-called "Great Recession" shortly after Lehman filed for bankruptcy. This is important, because it shows that massive deterioration in many asset values across the greater economy did not occur prior to Lehman's bankruptcy filing.⁴⁰ This is a relevant context for assessments of Lehman's solvency and the reasonableness of its reported valuations prior to its bankruptcy filing.

Examiner's Conclusions

The examiner concluded there was sufficient evidence to support a finding that the parent company was insolvent beginning two weeks prior to Lehman's bankruptcy filing.⁴¹ The examiner based this on two observations:

1. The haircut, or the difference between market and face value, on the parent company's debt, exceeded the parent company's market capitalization from September 8, 2008 through September 15, 2008.⁴² The examiner's approach to solvency was similar

39 Carl Hulse and David M. Herszenhorn, "House Rejects Bailout Package, 228-205, Stocks Plunge," *The New York Times*, September 29, 2008. The authors reported that "[t]he vote came in stunning defiance of President Bush and congressional leaders of both parties, who said the bailout was needed to prevent a widespread financial collapse."

40 Of course, some asset values deteriorated substantially before Lehman's bankruptcy filing. For example, the residential markets in some locations significantly deteriorated during 2007 and the first half of 2008.

41 Examiner Report at 1573.

42 Ibid at 1584. "Haircut" refers to the difference between the market and face value of these obligations.

to the approach taken by the courts in *Vlasic*, *Iridium*, *TOUSA*, and *Idearc*.⁴³

2. The insolvency conclusion could be back solved to September 2, 2008, because that was the date when a potential investor (KDB) privately indicated that it would no longer negotiate with Lehman.⁴⁴ The backward projection of the parent company's insolvency from September 8, 2008, to September 2, 2008, was based on the concepts of "retrojection" (a backwards projection) and "current awareness" (a reflection of information that was known but not publicly disclosed).⁴⁵

The examiner further observed that the parent company may have been insolvent before September 2, 2008. This observation was based on similar observations:

1. The haircut on the parent company's debt exceeded the parent company's market capitalization on certain dates in July and August 2008.⁴⁶
2. "... [T]here is sufficient evidence to apply current awareness to the circumstances of Repo 105 and issues of liquidity."⁴⁷

Thus, it is possible that the parent company was insolvent on other (perhaps all) dates in July and August 2008 and perhaps other dates before July 2008. Nevertheless, the examiner did not resolve this issue due to the inherent difficulties in performing the analysis as the Repo 105 and liquidity issues were never disclosed before Lehman's bankruptcy filing.⁴⁸

[Additional articles relating to Lehman bankruptcy issues will appear in future editions, *Ed.*]

Allen Pfeiffer and Michael Vitti are managing directors at Duff & Phelps LLC. They both were financial advisors to Anton Valukas, the court-appointed examiner for Lehman. Mr. Pfeiffer led the team of financial advisors. Mr. Vitti focused on many of the valuation-related issues that were explored by Mr. Valukas.

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43 See Michael Vitti (2013) Grounding Retrospective Solvency Analyses in Contemporaneous Information: Part I. *Business Valuation Review*: Winter 2013, Vol. 32, No. 4, pp. 186-211 for further discussion of this approach to assessing solvency.

44 Examiner Report at 1584 and 1587. Secretary Paulson had told Lehman's CEO that its existence would be in jeopardy if it reported losses during Q3 and did not have a buyer lined up or another survival plan in place.

45 Ibid. at 1583-1587.

46 Ibid. at 1584.

47 Ibid. at 1586.

48 Repo 105 was an accounting device that deflated the size of Lehman's balance sheet and net leverage ratio. Liquidity issues refer to the mischaracterization of Lehman's liquidity pool.

Practice Tips

Reinterpreting the Role of the Financial Expert in the New Patent Landscape

By Marc Scoppettone

In the recent past, attorneys in patent infringement litigation usually employed a single expert—typically a CPA or PhD economist—to prove their damages case. Such financial experts were generally afforded wide latitude by the courts to:

- Provide broad analyses and opinions on specific industries—regardless of specific personal experience—based on the evidentiary record
- Opine on consumer-buying behavior with respect to patented and non-patented features
- Perform various quantitative analyses, such as regression analysis, to evaluate lost profits and price erosion claims

While attorneys would sometimes propose adjunct experts from academic or industry backgrounds to buttress the damages case, the financial experts often resist the suggestion. From the point of view of the financial expert, at best, these unwanted “specialists” would need to be managed so as to not contradict or undercut the telling of the damages story. At worst, they would be viewed as interlopers who posed risks to the financial expert’s positioning as the lead consultant to the lawyers, the focal point of the damages testimony in court, and the beneficiary of the fees available in the “expert budget.”

However, in recent years there has been a spate of patent infringement decisions from the Court of Appeals for the Federal Circuit (Federal Circuit) that have challenged the thoroughness and/or the expertise underlying the damages testimony. As a consequence, the old model of the “Renaissance Man” financial expert has lost favor, and the landscape for damages analysis has shifted to a coordinated, tag-team approach. Commentators and analysts have written about how landmark cases, such as *LaserDynamics*¹ and *Uniloc*,² have redefined acceptable conventions for proving damages, particularly when measured as a reasonable royalty. This article, however, presents these “new rules” cases from a different perspective—their implications as to how a financial expert should recast the damages assignment and his/her role in it, to outside counsel. These cases suggest that the financial expert now has a responsibility to assist counsel to secure all of the necessary, authoritative, evidentiary support to defend his or her assessment of patent damages.

Case Study #1: Knowing the Limits of Your Expertise

In *Brandeis v. Keebler*,³ Judge Richard Posner ruled that the plaintiff’s damages expert could not offer testimony regarding the cost of switching to a non-infringing oil blend because she was not an expert on how the change would affect consumer demand for the products—a line of Keebler cookies. Judge Posner held she should have sought reliable adjunct evidence to support her analysis. The court noted that a technical expert, who was testifying on a different topic, could have discussed the effects of using the non-infringing oil blend on the product’s taste, but the damages expert did not consult with



him. The court stated that the damages expert should have consulted with a separate expert on sales or marketing in order to support the claims.

Through discovery, the plaintiff may have obtained sufficient supporting evidence by requesting, through discovery, information from the defendant regarding focus group findings and taste-test analyses that incorporated quantitative analysis regarding the patented ingredient. Alternatively, the plaintiff could have commissioned its own independent survey expert to provide statistically valid evidence to support its damages expert’s analysis of non-infringing substitutes.

Another option would be to conduct an econometric analysis of retail sales data, such as the Nielsen Company’s point-of-purchase scanner data. Government agencies such as the Federal Trade Commission and the Antitrust Division of the Department of Justice routinely rely on statistical analyses of retail sales data in merger analyses to determine the degree of substitutability of one product for another. It would thus seem to be a logical approach to apply in a patent damages context when the question concerns a competing non-infringing alternative. While a damages expert may not possess the skill set, anticipating the analyses needed to support the damages analysis and establishing a network of experts with required skills in other fields not only protects the damages expert from admissibility attacks but also enhances the value he or she brings to their client the process.

A key lesson of this decision is not just that you must know your own limitations as a financial expert, but also that it is up to you to assist counsel address these concerns. It will more likely fall to you, the financial expert, to emphasize what *you* need in support of your damages opinion, from a discovery of supporting expertise viewpoint.

1 *LaserDynamics, Inc. v. Quanta Computer, Inc.*, 694 F.3d 51, 67 (Fed. Cir. 2012).

2 *Uniloc USA Inc. v. Microsoft Corp.*, 632 F.3d 1292 (Fed. Cir. 2011).

3 *Brandeis Univ. v. Keebler Co.*, No. 1:12-cv-01508 (N.D. Ill. 1/18/2013) (Doc. No. 474, at 8-10)

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Case Study #2: The Ever-Changing Royalty Base

In prior years, there were few expert skirmishes over the calculation of the appropriate royalty base that resulted in *Daubert* exclusion. This changed at the federal district court level beginning with *Cornell University v. Hewlett-Packard*⁴ in 2010 and was ultimately affirmed at the federal circuit level in *LaserDynamics*:

We reaffirm that in any case involving multi-component products, patentees may not calculate damages based on sales of the entire product, as opposed to the smallest salable patent-practicing unit, without showing that the demand for the entire product is attributable to the patented feature.⁵

In practice, some courts have allowed exceptions to the “smallest salable practicing unit” in cases that do not meet the strict eligibility criteria for what former Federal Circuit Chief Judge Rader has renamed the “entire market value exception.” In *Kimberly-Clark Worldwide, Inc. v. First Quality Baby Products, LLC*,⁶ the court denied a motion to exclude the plaintiff’s expert’s testimony computing damages on the larger royalty base because, in keeping with *Lucent v. Gateway*,⁷ the plaintiff’s expert commensurately reduced the royalty rate she applied. (It is worth noting that it is unclear from the opinion what the alternative smallest salable unit might be.) In this case, the court noted that prior *actual* license agreements were structured in this manner.

As if matters were not confusing enough, some federal district courts have ruled that the smallest salable unit is still too large to assess a reasonable royalty—and that the royalty base itself must be apportioned down. These opinions raise a conundrum: mathematically, the same result is reached whether one (a) reduces the smallest salable base by a given percentage before applying a royalty rate; or (b) uses the smallest salable base, then reduces the royalty rate by that percentage. Nonetheless, a court may accept one approach but not the other, requiring the damages expert to know which to use in a particular jurisdiction.

In *Network Protection Sciences, LLC v. Fortinet, Inc.*,⁸ the court excluded the testimony of plaintiff’s damages expert because use of the smallest salable unit was tantamount to employing the entire market value exception without the requisite proof of a nexus with consumer demand. Similar logic resulted in expert exclusions in *AVM Technologies, LLC v. Intel Corporation*⁹, and *VirnetX Inc. v. Cisco Systems, Inc.*¹⁰ In the latter case, the plaintiff’s expert calculated damages “from a single survey which found 70% of customers valued VoIP security. This apportionment factor is a poor substitute for the type of analysis one should undertake when parsing an alleged infringer’s profits for patents versus unpatented features.”¹¹ The Federal Circuit later affirmed the district court’s decision in the *VirnetX* matter.¹²

With proper foresight, including recognition of the increasing level of analytical rigor that courts demand to award royalty damages, *VirnetX* plaintiffs could have considered several more sophisticated

approaches. For example, plaintiff could have retained an expert in “conjoint analysis,” a special type of customer survey that ranks consumer preferences of various features, and then quantified the significance of the patented feature using a ranked logistic regression. Alternatively, plaintiff might have used data on product features and prices to perform a “hedonic regression,” which is used to parse out the value of particular attributes. Economists commonly use both of these generally accepted techniques in academic research. As such, their use in patent damages analyses, upon establishing the applicability of the underlying data, should withstand scrutiny by the courts.

What is a Financial Expert to Do?

Given the growing complexity in the (still evolving) legal standards to support an award of damages for patent infringement, it behooves the financial expert to meet with counsel to discuss damages strategy as early as possible. This may take persistence—patent matters differ from other types of tort cases in that, in addition to establishing liability (i.e., infringement), the plaintiff must establish that the patent is valid and enforceable. Thus, much of the legal team’s energy, on both the plaintiff and defendant side, is focused on moving the court to rule on these two key issues. Nonetheless, unless the parties have agreed, with court approval, to bifurcate the case (which stays the damages phase until liability and validity are established), it is important that the financial expert identify who will be developing the damages portion of the case and flesh out the applicable theories of damages as well as what the court will require as proof for an admissible showing of recovery under each theory.

Not too long ago, the above exercise would have been sufficient to allow the financial expert to begin work in patent infringement cases. Today, however, more is needed—promptly identifying and retaining experts in complementary fields whose testimony will be invaluable in laying the analytical foundation for the damages opinions. By going through this additional strategic step early in the case, the team of experts can work together and with counsel to design a discovery plan that offers the best chance of providing evidence that can be used to directly and indirectly (through the foundational analyses and opinions) support each damages opinion expressed by the financial expert. For as the recent wave of district court and the Federal Circuit decisions have made painfully clear, the financial expert who fails to proffer rigorously supported damages testimony does so at great peril. ☹️

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He specializes in applying economic and statistical methods to anti-trust, intellectual property, economic damages, and class certification matters. In his litigation support practice, Mr. Scoppettone works closely with clients on every phase of the legal process, from pre-litigation analysis, discovery strategy and support, to expert reports and trial.

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4 *Cornell Univ. v. Hewlett-Packard Co.*, 609 F. Supp. 2d 279 (N.D.N.Y. 2009).

5 *Supra*

6 *Kimberly-Clark Worldwide, Inc. v. First Quality Baby Products, LLC*, No. 1:09-CV-1685 (M.D. Pa. 11/13/2013) (Doc. No. 1024)

7 *Lucent Technologies, Inc. v. Gateway, Inc.*, 580 F.3d 1301 (Fed. Cir. 2009).

8 *Network Protection Sciences, LLC v. Fortinet, Inc.* (N.D. Cal. 9/26/13) (Doc. No. 334, at 10-13)

9 *AVM Technologies, LLC v. Intel Corp.*, No. 10-610-RGA (D. Del. 2/21/2013) (Doc. No. 283)

10 *VirnetX Inc. v. Cisco Systems Inc.*, No. 6:10-CV-417 (E.D. Tex. 3/1/13) (Doc. No. 745)

11 *Id.* at 4.

12 *Virnetx, Inc. v. Cisco Sys., Inc.*, No. 2013-1489, (Fed. Cir. Sept. 16, 2014).

View From the Bar

The Recipe for “Secret Sauce” and How to Protect It as a Trade Secret

By Audra Dial

Courts are becoming increasingly concerned about what information is protectable as a trade secret; as a result, courts are demanding that trade secret plaintiffs identify their protected trade secrets with greater specificity early in a case. No longer do courts tolerate trade secret claims generally alleging misuse of trade secrets. Judges will dismiss claims alleging misuse of trade secrets, including customer lists, pricing information, or competitive business plans unless those trade secrets are identified with precision. Courts expect trade secret owners to explain early in litigation which documents identify the specific trade secrets and even more precisely what *specific information* contained in those documents rises to the level of a trade secret. Without this specificity, trade secret plaintiffs can face sanctions, including dismissal of their claims. *See, e.g., N. Am. Lubricants Co. v. Terry*, 2011 WL 5828232, at *6 (E.D. Cal. Nov. 18, 2011) (“boilerplate list” of alleged trade secrets, including customer database, business model, and marketing materials was insufficient; to be sufficiently specific, trade secrets had to be “described with particularity (e.g., by author(s), date of creation, subject matter, basis for trade secret claim, etc.) or be removed from the response to [the] interrogatory”); *DeRubeis v. Witten Techs., Inc.*, 244 F.R.D. 676 (N.D. Ga. 2007) (ordering trade secret plaintiff to first identify its trade secrets with particularity before requiring defendant to respond to plaintiff’s discovery requests).

An important corollary to this requirement is that trade secret plaintiffs must be able to establish that the specific information they seek to protect will individually satisfy the elements of a trade secret. Although trade secrets are currently creatures of state law,¹ the vast majority of states have enacted a version of the Uniform Trade Secrets Act (UTSA). The elements of a trade secret under the UTSA are relatively basic: to constitute a protectable trade secret, the intellectual property must derive economic value from not being generally known and must be subject to reasonable degrees of protection. In defining a trade secret with the level of specificity courts now require, litigants must think about these elements on a much more narrow scale.

When identifying specific information as a trade secret, it is important for the trade secret owner to be able to identify how that specific information derives economic value by not being generally known. And, the asset or information must be capable of valuation in order to satisfy this requirement. Simply because information is not known beyond a company and is competitively important is not enough to demonstrate independent economic value. Instead, it must be shown that the asset provides its owner with a clearly defined economic benefit that can be calculated and presented to the court. *See, e.g., Sit-Up Ltd. v. IAC/InterActiveCorp.*, 05 CIV 9292 (DLC), 2008 WL 463884 (S.D.N.Y. Feb. 20, 2008) (“specificity is required before the court so that the defendant can defend himself adequately



against claims of trade secret misappropriation, and can divine the line between secret-and non-secret information . . .”; *SL Montevideo Tech., Inc. v. Eaton Aerospace, LLC*, 491 F.3d 350, 354 (8th Cir. 2007) (“[s]imply to assert [that] a trade secret resides in some combination of otherwise known data is not sufficient, as the combination itself must be delineated with some particularity in establishing its trade secret status”).

How to Identify the “Secret Sauce”: Trade Secret Audits

As a result of the scrutiny facing trade secret claims early in their litigation life, trade secret owners should be proactive about identifying what assets constitute their trade secrets and how to value those assets. For example, a trade secret audit, conducted on an annual basis that involves key stakeholders from a variety of departments, is one approach to institutionalizing the identification of a company’s trade secrets. Through the audit process, a company’s stakeholders in key departments, such as product development, sales and marketing, finance, IT, and legal, can come together and discuss what assets exist or are in development that are most valuable to the company. Once identified, the legal department can ensure that steps are taken to properly safeguard the secrecy of the information. At the same time, finance can work with financial experts and outside counsel to evaluate the economic benefits the company obtains from these assets in order to ensure that it can later be proven that these assets derive ascertainable economic value because of their secrecy.

After these processes are undertaken, the audit team can reconvene to determine which of the identified assets are capable of protection as the company’s trade secrets. This evaluation process is important because over-identifying “trade secrets” can lead to dilution of and make it difficult to protect those assets. Being more conservative about identifying only those assets that are the most critical as “trade secrets” can result in more concerted effort to protect them and reduce the possibility of breaches of secrecy surrounding those assets. Moreover,

¹ This may change somewhat with the legislation currently pending in Congress—the U.S. House of Representatives’ Trade Secrets Protection Act and the U.S. Senate’s Defend Trade Secrets Act—both of which seek to create a federal private cause of action for trade secrets theft. In the event either legislation passes, however, the federal statutes would act in parallel with state trade secrets statutes and would not preempt them. *See* H.R. 5233; S. 2267.

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identifying only this “mission critical” information as trade secrets can increase the economic value derived from their secrecy.

Protecting Information Beyond the “Secret Sauce”

Information that does not rise to the level of a trade secret but is nevertheless valuable and important to the company may still be protected as confidential information, and the audit process will enable management to identify more specifically the information that needs to be protected through contractual means. For example, measures such as confidentiality clauses or markings and nondisclosure agreements are effective contractual methods to protect the information that is important to the company but may not rise to the level of a trade secret. Using contractual provisions along with trade secret rights will help ensure that trade secret claims are maintainable and that the trade secret plaintiff can clearly justify its intellectual property early in the case.

Conclusion

With the early scrutiny courts are placing on trade secret claims and the increased cost of litigation, it is important for trade secret owners to be able to identify their “secret sauce” trade secrets with precision. Trade secrets litigation is on the rise and case volume is expected to double by 2017. Preparation is the best offense, and using a routine audit process to evaluate a company’s assets and determine which may appropriately obtain trade secret protection can become a key element of a trade secret owner’s play book. 🌐

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Valuation for the Litigation Practitioner

License or Permit Intangible Asset Analyses

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Licenses and Permits

A license is a governmental permission to perform a particular act or to conduct a particular business or occupation. Business licenses and permits protect the public by ensuring that either a business owner/operator or a professional practitioner complies with applicable laws and regulations. A permit granted by an authorized public official or agency allows the grantee individual or business to perform certain acts.

A license can also be a private grant of the right to use an intellectual property, such as a patent or musical composition copyright. Depending on the nature of the business and the regulatory environment in which the business operates, the license or permit intangible asset may convey significant value to the owner/operator. Licenses and permits typically fall into an intangible asset category referred to as contract intangible assets. Such intangible assets provide value to the owner/operator as a result of a written, legally enforceable contractual arrangement. The contractual arrangement is made with a governing authority; it grants the owner/operator the right to conduct all or part of the subject business.

A contract intangible asset can result from any number of the agreements that are regularly executed among businesses or individuals. A contract intangible asset is typically classified as either receiver based or provider based. A receiver based contract relates to (1) the receipt of goods or services at an economically advantageous rate; or (2) the granting of exclusive or protective rights to an entity. A provider based contract relates to (1) the provision of goods and services at favorable rates (relative to the underlying cost of the goods or services provided); or (2) the securing of future benefit streams or provider rights for an entity.

Licenses and permits can be either receiver-based or provider-based. A business license or permit may grant exclusive or protective rights to the grantee. The license or permit may secure future benefits or provider rights for the grantee. For example, an owner/operator may be granted a license or permit to protect its right to receive or import certain products. Such a license would be a receiver-based contract.



In contrast, the owner/operator may be granted a license to provide professional services or to sell regulated products. An example of such a license is a Federal Drug Administration (FDA) license to manufacture and sell pharmaceutical products. This FDA license would be a provider-based contract. In each case, the license or permit grants the owner/operator the ability to generate an economic benefit from a specified business activity.

Licenses and permits are typically categorized as contract intangible assets because they grant protective rights to the grantee owner/operator (whether individual or entity). Such licenses and permits allow the grantee owner/operator the legal right to conduct business in a legally regulated setting. These rights have value to the grantee owner/operator. And, such rights may (or may not) be conveyed to a third party.

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License and Permit Examples

A business license or permit provides the grantee with the authorization to operate all or a portion of the business in an environment subject to governmental agency or professional organization regulation. The regulatory authority polices the businesses or individuals that operate in the industry or profession.

A license may also be a private grant of the right to use identified intellectual property, such as a patent, trademark, or copyright. Trademark licenses, patent licenses, and copyright licenses are common examples of intellectual property licenses. Franchise agreements, liquor licenses, and hospital certificates of need are common examples of licenses that permit the operation of a certain business types.

Professionals and other service providers are often required to obtain a license to practice in certain industries or professions. These licenses are, typically, not transferable. However, such licenses do have a value to the grantee practitioner. The value of such licenses is often a dispute in family law and other litigation matters.

This list presents examples of common business licenses and permits:

- License to sell regulated goods, such as pharmaceuticals
- License to operate in regulated industries, such as healthcare, food service, or sale of firearms
- License to practice in a regulated profession, such as medicine, law, or accountancy
- License to sell alcoholic beverages
- Logging permit
- Salvage permit
- Construction permit
- Environmental permit

Common Reasons to Analyze a License or Permit

A business license or permit may be valued for purposes of a sale or conveyance to a third party. In certain cases, a license provided by governmental agency is transferable to a third party, either on its own or as part of the sale of a business or professional practice. A license or permit may be valued for purposes of a business combination purchase accounting fair value allocation. For financial accounting purposes, a portion of the business or practice acquisition purchase price should be allocated to the license or permit fair value.

A license or permit may also be analyzed within a litigation context. Such intangible asset damages analyses often occur when a litigant claims economic damages to the license or permit due to the alleged wrongful action of an opposing party.

Factors to Consider in the License or Permit Analysis

This list summarizes the factors that analysts typically consider in the license or permit valuation or damages measurement:

- The number of licenses or permits available in the industry or profession and the number of licenses or permits available to similarly situated applicants
- The cost to replicate or replace the license or permit
- The owner/operator's history regarding the renewal or termination of prior licenses and permits
- The average legal or contract life of the license or permit

- The restrictions placed on the renewal of the license or permit
- The ability of the grantee owner/operator to transfer the license or permit
- The cost of maintaining any professional or operational standards related to the use of the license or permit
- The general economic conditions and outlook and the specific industry or profession conditions and outlook

In conducting the analysis, analysts typically review both the terms of the license or permit and the existing industry and market conditions related to the license or permit. Due diligence procedures allow the analyst to identify the economic benefits, if any, related to the license or permit.

Licenses or permits are typically valued by applying any of the three generally accepted intangible asset valuation approaches: the Market Approach, the Income Approach, and the Cost Approach.

In the Market Approach, analysts may consider comparable intangible asset sales (the Comparable Uncontrolled Transaction Method), comparable intangible asset licenses (the Relief From Royalty Method), and comparable companies that do or do not operate the intangible asset (the Comparable Profit Margin Method).

In the Income Approach, analysts may consider either the yield capitalization method or the direct capitalization method. Analysts will consider the remaining useful life (RUL) of the subject license or permit when using either Income Approach method. In selecting the type of income to include in the Income Approach analysis, analysts consider such income measures as excess earnings, incremental earnings, or a split of total business enterprise operating income.

In applying the Cost Approach, analysts may consider either the Replacement Cost New Less Depreciation Method or the Reproduction Cost New Less Depreciation Method. In the application of any Cost Approach method, analysts consider all intangible asset cost components and all forms of intangible asset obsolescence.

The following examples illustrate the application of (1) a common Income Approach method—i.e., the Multi-Period Excess Earnings Method (a Yield Capitalization Method); and (2) a common Cost Approach method—i.e., the Replacement Cost New Less Depreciation (RCNLD) Method. Although the Market Approach is also a generally accepted approach, in practice, it is less commonly used to value a license or permit because of the relative paucity of empirical data with regard to the comparable sales or comparable licenses of such intangible assets.

Income Approach Valuation Illustrative Example

In this example, Alpha Corporation (Alpha) is the grantee of a license from the FDA to manufacture and sell a generic drug product, Bravo. For the last few years, Alpha has been operating near its manufacturing capacity. Therefore, Alpha has subcontracted the manufacture of its Bravo product to Charlie Company (Charlie). Charlie is also an FDA-approved generic drug manufacturer. In its contract with Alpha, Charlie agreed to meet all of the FDA requirements related to the manufacture of the Bravo product.

At the end of 2014, FDA inspectors inspected the Charlie manufacturing facility. The FDA concluded that Charlie was using the wrong ingredients to manufacture Bravo. In fact, Charlie was using less ex-

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pensive (and non-approved) ingredients in the manufacture of Bravo. The FDA revoked Charlie's license to manufacture generic drugs. Since Alpha did not apply quality control procedures over Charlie, the FDA also revoked Alpha's license to manufacture Bravo, effective January 1, 2015. As of the license revocation date, there was eight years left on Alpha's license to manufacture Bravo.

Alpha sued Charlie, claiming damages equal to the total loss of the value of the FDA license to manufacture Bravo.

Alpha's counsel retained an analyst to measure the economic damages Alpha suffered as a result of Charlie's wrongful actions. Based on counsel's instruction, the analyst measured damages as the total value of the FDA license as of January 1, 2015.

The objective was to estimate the value of the FDA license to manufacture Bravo (the subject license) as of the January 1, 2015, the license revocation date. The purpose of the analysis was to assist the finder of fact in the litigation to quantify Alpha's damage due to Charlie's wrongful actions.

Based on the analyst's consideration of highest and best use, the analyst valued the subject license under the premise of value in continued use as part of a going concern business. If all of the necessary (including prospective) income and expense data are available, analysts often value licenses using the Income Approach. Using the Income Approach, the license fair value is estimated by calculating the present value of the income generated by the owner/operator's ability to conduct business as granted by the license. In this instance, the analyst concluded that there were sufficient income and expense data available to apply the Income Approach to value the subject license. The analyst decided to apply the Income Approach and the Multi-Period Excess Earnings Method (MEEM) to value the subject license.

Alpha management provided the analyst with financial projections for the remaining eight year legal term of the subject license.

Next, the analyst calculated the income from the business operations conducted under the subject license. The analyst decided to analyze excess earnings as the appropriate income measure. The analyst defined excess earnings as follows:

Earnings before interest and taxes	
Less:	Income tax expense
Plus:	Depreciation and amortization expense
Less:	Capital expenditures
Less:	Increases in net working capital
Less:	Contributory asset charge
Equals:	Excess earnings related to the FDA license

In the MEEM, the contributory asset charge (CAC) represents a fair return of and on any tangible assets and intangible assets that are used in the Alpha business operations. The analyst applied a CAC in order to identify that portion of total business income that is specifically contributed by the subject license. In this example, the analyst calculated the CAC as an economic rent. The economic rent is a fair return of and on all of the Alpha contributory assets, expressed as a percent of revenue.

The analyst subtracted the CAC from the projected net income from the Bravo product line in order to isolate the residual amount or "excess earnings" generated by the FDA license. This CAC represents

the fair return on all of the contributory assets. In this example, the analyst calculated the CAC by multiplying a market-derived rate of return by the estimated fair value of Alpha's tangible and other intangible assets.

In this MEEM example, the contributory assets included net working capital, real estate, tangible personal property, and an assembled workforce. The analyst assigned a lower fair rate of return on the net working capital, real estate, and tangible personal property. And, the analyst assigned a higher fair rate of return on the assembled workforce intangible asset. The conclusion of this analysis is that the required CAC amount approximates five percent of the Alpha revenue. Therefore, the analyst selected five percent of revenue as the CAC.

In the next procedure, the analyst discounted the projected excess earnings over a discrete projection period. Exhibit 1 lists the valuation variables that the analyst used in the FDA license valuation.

Exhibit 1

Alpha Corporation
 FDA License Damages Analysis
 Illustrative Damages Variables
 As of January 1, 2015

Item	Damages Variable	Illustrative Damages Assumptions
1	Present value discount rate	13%, based on the Alpha weighted average cost of capital
2	Discrete projection period	8 years, based on the remaining term of the current FDA license and on management's financial plan
3	Effective income tax rate	39%, based on the Alpha historical effective income tax rate
4	Net working capital	The annual estimates are based on management's financial plan
5	Depreciation and amortization expense	The annual estimates are based on management's financial plan
6	Capital expenditures	The annual estimates are based on management's financial plan

Exhibit 2 presents the MEEM analysis during the eight year discrete projection period.

As presented in Exhibit 2, the value of the FDA license at the time of the damages event was \$77,400,000 (rounded). Alpha attempted to mitigate its damages (i.e., to appeal to the FDA to reinstate its license), but it could not convince the FDA to allow it to manufacture or distribute Bravo. Therefore, the analyst concluded that the amount of damages suffered by Alpha as a result of Charlie's wrongful actions was the total value of the subject license—i.e., \$77,400,000. (For simplicity, this example does not consider the income tax impact on Alpha of the judicial award of \$77,400,000.)

Cost Approach Example

A permit, such as an environmental permit or construction permit, may be an important asset to an owner/operator. Without certain permits, the owner/operator may not be able to operate the subject business. A permit is sometimes valued using the Cost Approach.

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Exhibit 2

Alpha Corporation
 FDA License Damages Analysis
 Income Analysis–MEEM
 As of January 1, 2015
 (in \$000s)

Multiperiod Excess Earnings Method Variables	Projected Fiscal Years Ending December 31:							
	2015	2016	2017	2018	2019	2020	2021	2022
Total Revenue	63,838	81,780	103,781	120,734	136,910	153,613	170,309	186,482
Pretax Income	(52,957)	(41,369)	(25,496)	(13,745)	(2,264)	10,961	26,883	42,778
add: Interest Expense	35,941	36,548	37,819	38,896	38,041	36,221	32,887	28,110
Earnings before Interest and Taxes (EBIT)	(17,016)	(4,821)	12,323	25,151	35,777	47,182	59,770	70,888
times: 1 – Effective Income Tax Rate	<u>0.61</u>	<u>0.61</u>	<u>0.61</u>	<u>0.61</u>	<u>0.61</u>	<u>0.61</u>	<u>0.61</u>	<u>0.61</u>
Net Operating Income	(10,380)	(2,941)	7,517	15,342	21,824	28,781	36,460	43,242
add: Depreciation and Amortization Expense	15,798	18,953	20,771	22,076	23,317	24,553	25,729	26,405
less: Capital Expenditures	(7,495)	(11,788)	(10,197)	(10,444)	(9,922)	(9,891)	(9,412)	(9,512)
less: Increase in Net Working Capital	(1,828)	(1,971)	(8,754)	(2,097)	(2,272)	(2,274)	(2,189)	(2,028)
less: Contributory Asset Charge [a]	(3,192)	(4,089)	(5,189)	(6,037)	(6,845)	(7,681)	(8,515)	(9,324)
equals: Excess Earnings	(7,097)	(1,836)	4,148	18,840	26,102	33,488	42,073	48,783
Periods beyond Valuation Date	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50
Discount Factor	0.939	0.831	0.735	0.651	0.576	0.510	0.451	0.399
Present Value of Excess Earnings	(6,669)	(1,526)	3,050	12,027	15,032	17,065	18,975	19,469
Present Value of Discrete Projection Period Excess Earnings								77,428
Value of the FDA License (rounded)								<u>77,400</u>

Footnote:

[a] The contributory assets include net working capital, real estate, tangible personal property, and other identifiable assets (in this case, assembled workforce). The contributory asset charge (CAC) is calculated as (1) a fair rate of return multiplied by (2) the fair value for each contributory asset. The analyst estimated the annual amount of the CAC to be equal to 5% of revenue.

In this second example, Delta Corporation (Delta) purchased an electric and steam cogeneration plant on January 1, 2015. The cogeneration plant has the operating capacity to produce approximately five million pounds of steam per hour and approximately 800 megawatts of electricity per hour. Delta entered into a long-term provider contract to fulfill all of the steam and electricity requirements of the Echo Oil Company (Echo) refinery. The Echo refinery is located just next to the Delta cogeneration facility.

Delta will sell all of its excess electricity generation capacity (that is, the electricity generation in excess of the Echo requirements) into the local power grid. Delta will receive the market income rate per megawatt hour for the electricity that it sells into the local power grid.

Delta purchased the cogeneration plant from Foxtrot Company, the prior owner. Foxtrot operated the plant successfully for years. As part of the asset purchase agreement, Foxtrot agreed to transfer all of the facility-related tangible assets and intangible assets to Delta. Specifically, Foxtrot agreed to transfer the facility environmental permits (the subject permits) to Delta.

Although Foxtrot reported that it would transfer the environmental operating permits to Delta, it did not. Delta sued Foxtrot for breach

of contract, claiming the total value of the subject permits as its damages.

Delta's counsel retained an analyst to estimate the value of these environmental permits. The analyst will work with counsel to prove the amount of damages Delta suffered due to Foxtrot's failure to transfer the subject permits.

The state department of environmental regulation issued the environmental permits. There are two permits related to the cogeneration facility: a water permit and an air permit. The cogeneration facility owner/operator must have both of these permits in order to operate the facility. These permits allow the permittee to emit up to a specified amount of pollutants into both the local water source and the atmosphere from the cogeneration facility operations. The utility owner cannot operate the facility if it exceeds these environmental limitations.

The analyst decided to apply the Cost Approach and the Replacement Cost New Less Depreciation (RCNLD) Method to measure the value of the subject permits. The analyst is aware that an owner cannot operate the facility unless the permits are in place. Delta manage-

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Exhibit 3

Delta Corporation
Description of the Subject Environmental Permits
As of January 1, 2015

State	Environmental	Permit	Type of Permit	Permit Grantee	Facility Name	Active Permit?	Permit Expiration Date	Term of Permit	Management Estimate of Direct and Indirect Costs for Permit Issuance
		12345	Water	Charlie Corporation	Cogeneration Facility	Yes	5/23/19	5 years	\$150,000
		54321	Air	Charlie Corporation	Cogeneration Facility	Yes	10/18/19	5 years	\$150,000

Exhibit 4

Delta Corporation
Environmental Permits Damages Analysis
Cost Approach - RCNLD Method
As of January 1, 2015

Cost Approach Analysis

	Direct Costs and Indirect Costs	RCNLD Components
	\$	\$
State Environment Permit No. 12345 - Water	150,000 [a]	150,000
State Environment Permit No. 54321 - Air	150,000 [a]	<u>150,000</u>
Total Direct Costs and Indirect Costs		300,000
plus: Entrepreneurial Incentive Opportunity Cost [b]		<u>19,000,000</u>
equals: Replacement Cost New [d]		19,300,000
less: Depreciation and Obsolescence [c]		<u>0</u>
equals: Replacement Cost New Less Depreciation [d]		19,300,000
Environmental Permits Value and Damages Measure (rounded)		<u><u>19,300,000</u></u>

Footnotes:

[a] Based on the actual direct costs and indirect costs incurred by Delta to obtain the replacement permits. These direct costs and indirect costs include company management and engineering time, administrative time, law firm fees, environmental engineering study fees, water and air laboratory testing fees, and state permit application fees related to obtaining the environmental permits.

[b] Represents the opportunity cost or lost profit that Delta will incur during the application period for the state to issue replacement environmental permits.

[c] Since the Foxtrot permits were recently issued and since Foxtrot as owner/operator was in full compliance with all permit regulatory requirements, the analyst concluded that there was no obsolescence or depreciation related to the Foxtrot permits.

[d] In this analysis, the analyst concluded that environmental permits are not the type of intangible assets that are normally purchased from an intangible asset developer. Therefore, in this particular analysis, the analyst decided not to add the developer's profit cost component.

ment provided information with regard to the costs (both internal and external) related to applying for these environmental permits. The analyst is also aware that the state department of environmental regulation publishes data with respect to how long it takes for an applicant to obtain a new or renewal environmental permit.

Exhibit 3 provides a summary description of the subject permits.

Exhibit 4 summarizes the estimates of the total direct costs and indirect costs associated with replacing the subject permits as well as

the analyst's assessment of the depreciation and obsolescence related to the subject permits.

Exhibit 5 summarizes the analyst's calculation of the entrepreneurial incentive/opportunity cost component related to the replacement of the subject permits. In Exhibit 5, the analyst considered all of the direct costs and indirect costs related to the replacement of the subject permits. As mentioned in Exhibit 5, the analyst concluded that the developer's profit cost component was not necessary in this par-

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Exhibit 5

Delta Corporation
 Environmental Permits Damages Analysis
 Cost Approach – RCNLD Method
 Entrepreneurial Incentive/Opportunity Cost Analysis

Entrepreneurial Incentive/ Opportunity Cost Analysis	Pro Forma Year Ending December 31, 2015 \$000 [a]	Nine Months Ending September 30, 2015 \$000 [b]
Total Revenue	396,631	297,473
Fuel and Consumables		
Natural Gas Units (mmBtu)	42,905	32,179
Natural Gas Price (\$)	7	7
Cost of Natural Gas [c]	278,882	209,162
Guel Gas Unit (mmBtu)	5,851	4,388
Natural Gas Price (\$)	7	7
Fuel Gas	38,029	28,522
Total Fuel and Consumables [d]	316,912	237,684
Gross Profit	79,720	59,790
Depreciation and Amortization Expense	9,673	7,255
Operating Expenses	35,766	26,824
Total Operating Expenses	45,439	34,079
Operating Income	34,281	25,711
Pretax Income	34,281	25,711
Income Taxes at 35%	11,998	8,999
Net Income	22,282	16,712
Depreciation and Amortization Expense	9,673	7,255
Capital Expenditures	(6,172)	(4,629)
Net Cash Flow	25,784	19,338
Entrepreneurial Incentive/ Opportunity Cost During the Nine-Month Permit Replacement Application Period (rounded)		19,000

Footnotes:

[a] Based on the Delta management operating budget for 2015.

[b] Based on the nine months estimated length of time necessary for the state to issue replacement permits.

[c] Calculated as the natural gas units (mmBtu) multiplied by the natural gas price (\$).

[d] Calculated as the fuel gas units (mmBtu) multiplied by the natural gas price (\$).


ticular analysis because, in this particular fact set, the analyst concluded that the environmental permits are not the type of intangible assets that would normally be developed by a third-party intangible asset developer.

The analyst concluded that the opportunity cost related to the replacement permit application period is an appropriate measure of the entrepreneurial incentive. The state department of environmental regulation publishes statistics indicating that it takes about nine months for an applicant to receive the grant of water emissions or air emissions permit. This nine-month application processing period is appropriate for an applicant that has a “clean” application (which is an application that indicates no environmental problems to the state examiners).

Delta management provided the analyst with the facility’s operating budget for 2015. The analyst used this 2015 operating budget to estimate the opportunity cost associated with not being able to operate the cogeneration plant during the nine month environmental permit replacement application period.

Since Foxtrot breached its contract by failing to transfer the subject permits, the analyst concluded that the damages to Delta equal the total value of the subject permits. The analyst concluded that the Cost Approach and the RCNLD Method was the most appropriate measure of the value of the subject permits. Based on the Cost Approach and RCNLD Method analysis, the analyst concluded that the damages suffered by Delta due to Foxtrot’s failure to transfer the facility’s environmental permits were \$19,300,000. (For simplicity, this example does not consider the income tax impact on Delta of the judicial award of \$19,300,000.)

Summary and Conclusion

Forensic analysts are often called on to measure the value of—and damages to—license or permit intangible assets for various reasons, including transactions, taxation, litigation, financial accounting, or other purposes. This discussion provided a definition of the license and permit intangible asset. It summarized the reasons why analysts may be asked to perform valuation, damages, or transfer price analyses related to such a license or permit. This discussion listed the common factors to consider in the license or permit analysis. This discussion mentioned the generally accepted intangible asset valuation approaches. And, this discussion presented an example of an Income Approach analysis of an FDA license and a Cost Approach analysis of power plant environmental permits. Both of these valuation analyses were used to measure the amount of damages suffered by the intangible asset owner/operator. 

Robert Reilly, CPA, has been a managing director of Chicago-based Wilamette Management Associates (WMA) for the last 23 years. WMA is a business valuation, forensic accounting, and financial opinion services firm. Mr. Reilly is a certified public accountant, chartered global management accountant, certified management accountant, chartered financial analyst, enrolled agent, accredited tax advisor as well as a certified business appraiser, certified valuation analyst, certified valuation consultant, certified review appraiser, certified real estate appraiser, and accredited senior appraiser. He is accredited in business valuation and certified in financial forensics. Mr. Reilly specializes in providing valuation and financial advisory services to ESOP sponsor companies, particularly with regard to annual employer stock valuations and ESOP transaction fairness opinions. He is the co-author of Guide to ESOP Valuations (the second edition was published in 2007). Mr. Reilly has co-authored 12 valuation textbooks, including Guide to Intangible Asset Valuation, published by the American Institute of Certified Public Accountants in 2013, and The Practical Guide to Bankruptcy Valuation, published by the American Bankruptcy Institute also in 2013. He has authored over 300 articles that were published in various accounting, taxation, or valuation journals. Mr. Reilly has served as an editor or editorial referee for numerous professional journals. He currently serves as an editor for Valuation Strategies, The American Bankruptcy Institute Journal, and Construction Accounting and Taxation.

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