

A Proposed Model for Measuring Expected Losses from Litigation Contingencies

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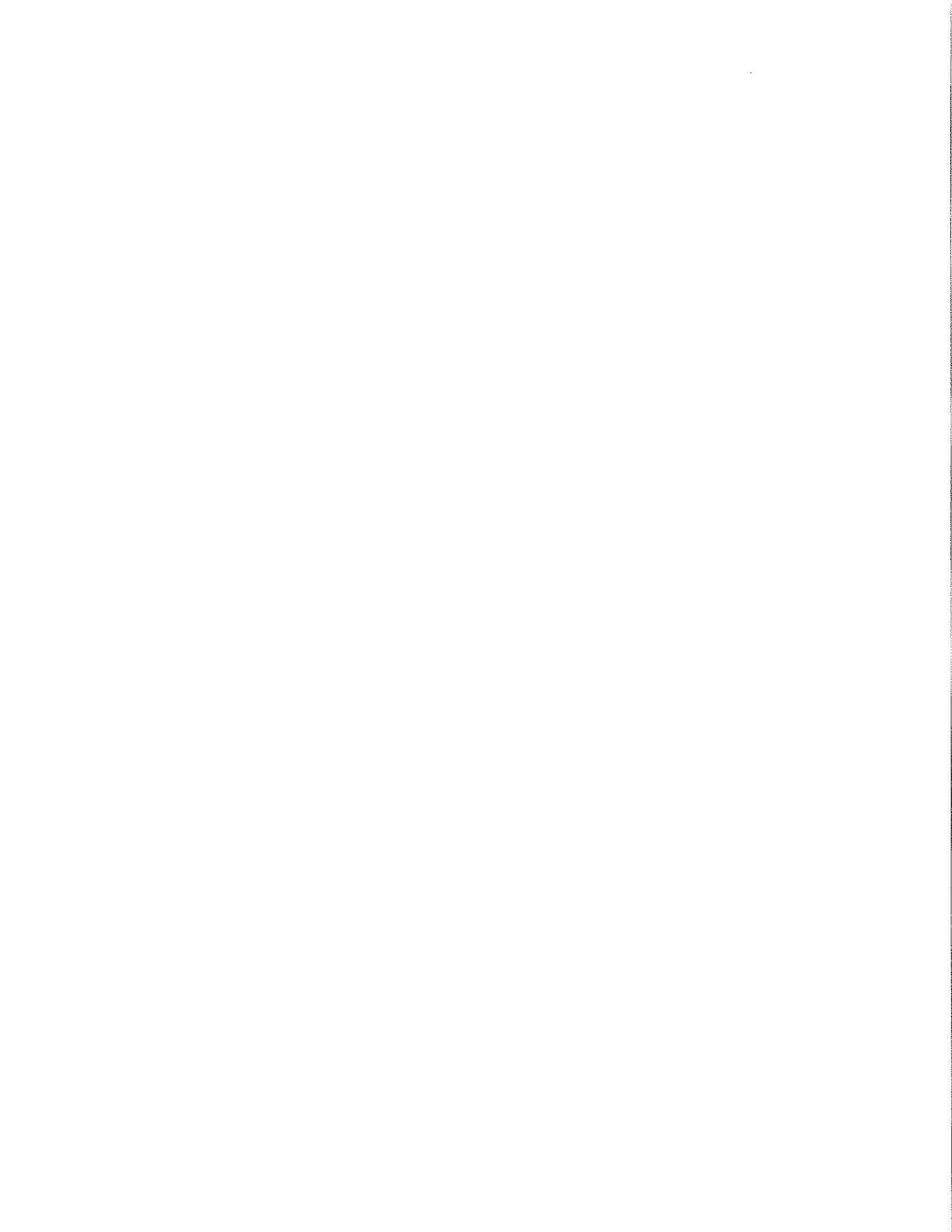
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A Proposed Model For Measuring Expected Losses From Litigation Contingencies

ABSTRACT: According to the Securities and Exchange Commission (SEC), financial reporting has become an exercise of compliance with the copious number of rules prescribed in accounting standards rather than doing what is necessary to effectively communicate to investors. The communication of the financial impact of loss contingencies is one of the areas mentioned by the SEC that needs significant improvement. The rules specified in the accounting standards for loss contingencies are quite flexible and allow a considerable amount of interpretation. This flexibility has allowed companies to comply with the rules by providing only vague and overly broad statements about their contingencies. Companies have also commonly reported that they do not expect to incur losses right up to the time a large settlement is announced. In this paper, the authors propose a way to improve the communication of one class of loss contingencies – the litigation contingency.



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From Litigation Contingencies**

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INTRODUCTION

When addressing the 2004 AICPA National Conference on SEC and PCAOB developments, Scott Taub, Deputy Chief Accountant, Office of the Chief Accountant of the United States Securities and Exchange Commission, reminded his audience of the importance of transparency in financial reporting by stating “.....[t]he purpose of accounting and financial reporting is to tell the truth, the whole truth, and nothing but the truth - - to explain what happened and why.”¹ The policy of full disclosure by publicly owned companies is the foundation of all securities legislation. Certainly, our legal, political and economic systems depend heavily on public confidence in published financial statements.²

Financial statements, however, do not appear to always communicate the whole truth. According to Mr. Taub, financial reporting has become an exercise of complying with the large number of rules included in accounting standards rather than doing what is necessary

¹ Scott A. Taub, “Speech by SEC Staff: Remarks before the 2004 AICPA National Conference on Current SEC and PCAOB Developments,” Retrieved June 3, 2005 from <http://www.sec.gov/news/speech/spch120604sat.htm>, p 3.

² American Bar Association, “Statement of Policy”, *Auditor’s Letter Handbook* (ABA, 1975), p.6.

to effectively communicate to investors.³ The disclosure of loss contingencies⁴ is one of the areas identified by the SEC that needs significant improvement. Although, the principle of neutrality for financial reporting requires auditors to provide assurance that a company's market risk is not unduly jeopardized by detrimental facts, it also requires auditors to provide assurance that events occurring which will subject a company to a material adverse outcome will be adequately communicated to the users of financial statements.⁵

Mr. Taub noted that companies commonly limit disclosure of loss contingencies to vague or overly broad disclosures that address litigation, income tax disputes, or other risks in general terms; and commonly report that they do not expect to incur losses right up to the time large settlements are announced. Such disclosure is unacceptable since it does not effectively communicate what is happening with companies' loss contingencies.⁶ Accordingly, this paper proposes a way to improve the communication of the financial impact of one class of loss contingencies, the litigation contingency, by developing and illustrating a model that can be used to estimate an expected loss from a pending litigation case that exposes the company to a material adverse outcome.

³ Taub. *Op. cit.*, at 3

⁴ Kenneth R. Austin, Robert Strawser, and Henry Mixon, "Contingencies and Unasserted Claims: Adequate Answers?" *CPA Journal* (September, 1985), p. 50.

⁵ *SFAS No. 5* defines a contingency as "...an existing condition, situation or set of circumstances involving uncertainty as to possible gain or loss to an enterprise that will ultimately be resolved when one or more future events occur or fail to occur."

⁶ Taub. *Op. cit.*, at 3

BACKGROUND

Accounting Standards for Loss Contingencies

Accounting standards for loss contingencies are provided in *Statement of Financial Accounting Standards (SFAS) No.5 "Accounting for Loss Contingencies"* and *Interpretation No. 14 "Reasonable Estimation of the Amount of a Loss (An Interpretation of SFAS No. 5)*. *SFAS No. 5* requires financial statements disclose valuations for loss contingencies when the likelihood of payouts are at least reasonably possible and the amount of the loss is subject to reasonable estimation.⁷ Losses subject to reasonable estimation are required to be accrued and reported on the face of a company's financial statements when they are perceived to be probable of resulting in payouts.⁸ When the reasonable estimation of a loss is a range of outcomes and one amount within the range appears to be a better estimate than any other amount, that amount is to be accrued. Only the minimum amount of the range is required to be accrued when no amount within the range is considered to be a better estimate than any other amount.⁹

For losses perceived to be reasonably possible of occurrence but have not reached the threshold of being probable, an estimated valuation is limited to disclosure in the notes to the

⁷ Financial Accounting Standards Board, *Statement of Financial Accounting Standards No. 5 Accounting for Contingencies* (Stamford, Conn.: FASB, 1975), paragraphs 8 and 10.

⁸ *Id.*, at paragraph 8.

⁹ Financial Accounting Standards Board, *Interpretation No. 14: Reasonable Estimation of Amount of Loss: An Interpretation of SFAS No. 5* (Stamford, Conn.: FASB, 1976), paragraph 3.

financial statements.¹⁰ Loss contingencies perceived of being at least reasonably possible of occurrence but not subject to reasonable estimation are also required to be disclosed in the notes to the financial statements. Disclosure of the latter must indicate the nature of the contingency and state why an estimate of the loss cannot be made.¹¹ The flexibility of the rules provided in *SFAS No. 5* may at least partially explain why companies are able to comply with loss contingency standards but yet do not effectively communicate the financial impact of their contingencies. For example, *SFAS No. 5* broadly defines “probable” as the chance of the future confirming event or events occurring being likely and “remote” to mean that the chance of the future confirming event or events occurring is slight. “Reasonably possible” is the default range of a future loss occurring being less than “probable” but more than “remote.”¹²

These broadly defined criteria allow disclosure decisions to be based on interpretations of the rules. The chance of an event being likely to happen (probable) could be interpreted to mean say either an over 50% chance or possibly at least an 80% chance of occurring. The chance of an event being remote could be interpreted to mean a chance of less than 20% or possibly less than 2%. For a given case, one interpretation of the loss contingency rules would require disclosure and possibly even accrual of a loss whereas another interpretation would not require any disclosure.

¹⁰ FASB *Statement of Financial Accounting Standards No. 5, op. cit., paragraph 10.*

¹¹ *Id.*, at paragraph 10.

¹² *Id.*, at paragraph 3.

Similarly, different interpretations can be made of what is meant by a contingent loss being subject to reasonable estimation. The claim that the outcome of a loss contingency is too uncertain for making a reliable estimation of a possible loss allows a company's management to avoid disclosing a valuation of a loss but yet be in compliance with financial reporting standards. Thus, the failure to disclose a valuation of a loss contingency would not preclude a company from receiving an unqualified audit opinion. However, it is questionable whether the company has fully explained what it knows about the financial impact of its loss contingencies.

The Issue of Quantitative Analysis in the Legal Profession

The Chief Executive and Financial Officers of a business enterprise have primary responsibility for adopting effective accounting policies as well as making fair representations in the company's financial statements. In publicly held companies, management's representations in the financial statements must be verified with evidence obtained by the company's independent auditor. However, the company's CEO, CFO, and independent auditor ordinarily do not have sufficient legal knowledge to make judgments about the eventual outcomes of lawsuits. Hence, these parties must seek legal advice from the client's attorney.

The legal profession has traditionally viewed the practice of law as an art rather than a science, a qualitative discipline rather a quantitative discipline. The ABA's *Statement of Policy*¹³

¹³ The American Bar Association (ABA) issued the *Statement of Policy Regarding Lawyers' Responses to Auditors' Requests for Information* in 1975. The ABA's *Statement of Policy* states its policy on the propriety of information that lawyers may provide to auditors about litigation exposure.

warns attorneys that a loss which may result from litigation cannot be assessed in the same manner as an empirically measured probability associated with such activities as warranty obligations that have a large number of transactions known from historical experience. The *ABA Statement* points out that comparable precise historical data for litigation cases do not exist since the outcomes of litigation cases depend upon human behavior such as the opinions of judges, jurors and expert witnesses.¹⁴ Thus, companies' management, at the advice of their attorneys and approval of their auditors, often reason that eventual damage settlements for litigation cases are too uncertain to estimate.

However, the qualitative approach traditionally used by attorneys in legal decisions does involve a process of prediction. Clients normally ask their attorneys for predictions about the potential outcomes of their cases.¹⁵ Attorneys base their predictions on intuitive assessments of how they perceive the participating parties in a court of law will react to the laws and evidence effecting their clients. Although attorneys' responses to their clients' requests for predictions have traditionally been limited to verbal expressions,¹⁶ those qualitative predictions can be translated into quantitative expressions of probabilities in order to assist in estimating a monetary loss. These probabilities will be subjective probabilities since they are based on intuitive assessments of human

¹⁴ American Bar Association, "Statement of Policy", *Auditor's Letter Handbook* (ABA, 1976), p. 18.

¹⁵ Detlev F. Vagts, "Legal Opinions in Quantitative Terms: The Lawyer as Haruspex or Bookie?" *The Business Lawyer: Volume 34* (January, 1979), p. 421.

¹⁶ *Id.*, at 422.

behavior rather than a large body of objective historical experience. However, subjective measurements in no way weaken the usefulness of probabilities.¹⁷ "...[l]aw, like other branches of social sciences, must be satisfied to test the validity of its conclusions by the logic of probabilities rather than the logic of certainty"¹⁸ Some believe that the reasoning of legal matters in quantitative terms should actually assist attorneys in providing more helpful advice to their clients.¹⁹

A probability distribution that has proven to be user friendly and has a history of effectively utilizing subjective probabilities is the beta distribution.²⁰ Some of the areas involving uncertain outcomes that have successfully used the beta distribution include capital investment decisions and evaluation of trial versus settlement decisions in the insurance industry.²¹ Many businessmen are accustomed to providing subjective estimates for decision making purposes which should enhance management's confidence of the usefulness of the beta distribution to estimate expected litigation contingency losses.²²

¹⁷ R.Greenberg, "The Lawyer's Use of Quantitative Analysis in Settlement Negotiations," *The Business Lawyer* (August, 1983), p.1562.

¹⁸ B. Cardoza, *The Growth of Law* (1924), p. 33.

¹⁹ Vagts, *Op.cit.*, p. 429.

²⁰ W. Greer, "Capital Budgeting Analysis with the Timing of Events Uncertain," *The Accounting Review* (January, 1970), pp. 106-107.

²¹ Richard J. Tersine and William Rudko, "A Bivariate Stochastic Approach to Capital Investment Decisions," *The Engineering Economist* (Spring, 1972), and Richard J. Tersine and Will Johnston, Jr., "The Mathematical Evaluation of Trial versus Settlement," *The Insurance Law Journal* (July, 1972).

²² Greer, *Op. cit.*, at 107-108.

In the following pages, the authors develop and illustrate a rational and systematic probabilistic model to be used for estimating expected losses from pending litigation cases. The proposed model utilizes a linear approximation of the expected value of the beta probability distribution which makes the model easy to use. The model is illustrated by using assumed data from a hypothetical pending litigation case. The values for the independent variables of the model consist of intuitive predictions made by a defense attorney of the optimistic, pessimistic and most likely outcomes of the litigation case. This information should be available from a defense attorney's ordinary legal defense work product.

THE LOSS ESTIMATION MODEL

The probability density function of the beta distribution is

$$f(x) = k (x - a)^\alpha (b - x)^\gamma \quad (1)$$

where k is a constant, a is the lower limit of the range of values for the independent variable x , b is the upper limit of the range of values for the independent variable x , and α and γ are parameters. The beta probability density function is continuous over the discrete range a to b . This range is particularly useful when there is a need to limit the number of outcomes requiring a probability assignment. The beta's parameters allow for the shifting of the central tendency to produce changes in the distribution's symmetry or skewness. This characteristic is important for many applications since probabilities may follow different patterns in different situations. The shifting of the central tendency of the beta distribution is illustrated in Figure 1 by varying the parameters α and γ .

Figure 1

The Beta distribution, $f(x) = c (x-a) (b-x)$
for different values of α and γ .

The expected value of the beta distribution is

$$E(X) = [(\alpha + 1) / (\alpha + \gamma + 2)] \quad (2)$$

The determination of α and γ requires the use of a cubic equation which is based on the expected value and variance of the standardized beta distribution. A more straight forward approach for determining the expected value for the beta distribution that been used successfully is the application of a linear approximation. The linear approximation of the expected value of the beta distribution²³ is

$$E(X) = (a + 4m + b) / 6 \quad (3)$$

where “a” and “b” again represent the lower and upper limits respectively of the beta probability

²³ U.S. Department of the Navy, *Summary Report: Phase 1: PERT* (Special Projects Office, U.S. Government Printing Office, July 1958), Appendix B(4).

distribution; “m” represents the mode of the distribution and the number “6” is a constant representing the approximate total area of the beta distribution. For pending litigation cases, the lower limit, “a”, and upper limit, “b”, of the beta probability distribution can be provided by the defense attorney as his predictions of the most optimistic and most pessimistic verdict outcomes respectively of a litigation case. The mode, “m” of the distribution can be provided by the defense attorney as his assessment of the most likely (frequent) verdict outcome of a case.

There is a sequence of events at a trial that become the basis for determining the estimated loss for a defendant using the linear approximation of the beta distribution’s expected value. The first event is the court’s decision of whether the plaintiff prevails. If the plaintiff wins the case, the second stage of the trial is the determination of the award to the plaintiff. Finally, the date of settlement is decided. Thus, in order to estimate the expected loss from a pending litigation case using the linear approximation, the defense attorney must provide the most optimistic, most pessimistic and most likely outcomes for (1) the probability of the plaintiff winning the case; (2) damages awarded if the plaintiff prevails; (ie, the potential award to the plaintiff assuming 100% liability for the defendant); (3) the potential number of days that the verdict will be delayed; and the (4) the potential cost of litigation.

To illustrate the estimation of an expected loss from a pending litigation case using the linear approximation of the expected value of the beta distribution, suppose that a defendant’s attorney made the following assessments for the case.

		Probability of the Plaintiff Winning <u>W</u>	Damages Awarded if Plaintiff Wins ^a <u>D</u>	Delay in Verdict ^b <u>N</u>	Cost of Litigating the Case ^c <u>C_L</u>
Assessments made by defense attorney					
Most optimistic	(a)	0.02	\$ 5,000	2	\$ 5,000
Most likely	(m)	0.60	800,000	3	70,000
Most pessimistic	(b)	0.95	2,000,000	10	210,000

^a The potential award at verdict after a trial on its merits assuming 100% liability

^b Number of years

^c Includes the cost of the trial

The values of the random variable W , the probability of plaintiff winning the case, and the random variable D , damages awarded if the plaintiff wins the case, are assumed to be independent. Thus, it is assumed that if the plaintiff wins the case at verdict, the amount of damages awarded to the plaintiff does not depend on the probability of the plaintiff winning the case; and hence, $P(D/W) = P(D)$. Using the linear approximation formula and the values of $a = 0.02$, $m = 0.60$, and $b = 0.95$ for the random variable W , the expected value for the probability of the plaintiff prevailing is

$$\begin{aligned} E(W) &= [0.02 + 4 \cdot 0.60 + 0.95] / 6 \\ &= 0.56 \end{aligned}$$

The random variable D represents the potential awards to the plaintiff given that the plaintiff has won the case (ie, there is 100% liability imposed on the defendant). Again, using the linear approximation and the values of $a = \$5,000$, $m = \$800,000$ and $b = \$2,000,000$ for the random variable D , the expected value of the damages awarded given that the plaintiff has prevailed is

$$\begin{aligned} E(D) &= [\$5,000 + 4(\$800,000) + \$2,000,000] / 6 \\ &= \$867,500. \end{aligned}$$

The amount of damages awarded to the plaintiff at the verdict of the trial is defined by the random variable, A . Given that W and D are assumed to be independent random variables, the expected value of the damages awarded at the verdict of the trial, $E(A)$, may be determined by multiplying $E(W)$, the expected value of the probability of the plaintiff winning the case, by $E(D)$, the expected value of the potential award at verdict assuming 100% liability for the defendant. Thus the amount of damages expected to be awarded to the plaintiff in the case is

$$\begin{aligned} E(A) &= E(W) * E(D) && (4) \\ &= 0.56 * \$867,500 \\ &= \$485,800. \end{aligned}$$

The estimated cost of litigating the case, including the cost of the trial, is represented by the random variable C_L . Using the values of $a = \$5,000$, $m = \$70,000$ and $b = \$210,000$ for the random variable C_L , the expected value of C_L is

$$\begin{aligned} E(C_L) &= [\$5,000 + 4(\$70,000) + \$210,000] / 6 \\ &= \$82,500. \end{aligned}$$

The total cost expected to be incurred by the defendant for the pending litigation case is defined by the random variable

$$C_T = A + C_L. \quad (5)$$

The expected total cost of the pending litigation case would be

$$\begin{aligned} E(C_T) &= E(A) + E(C_L) && (6) \\ &= \$485,800 + \$82,500 \\ &= \$568,300. \end{aligned}$$

The expected value of the total cost of the litigation case is measured at the date that information available prior to the issuance of the client's financial statements indicates it is probable that a liability has been incurred at the date of the financial statements. However, litigation cases may be settled several years after this likelihood assessment has been made. The interval of time between the likelihood assessment and the date of the case's verdict is described as the delay in verdict. *SFAS No. 5* is silent on whether long term contingent liabilities reported on the balance sheet should be discounted to their present value. However, the concept of materiality requires the expected future cash payouts to be discounted to the present if there is a material difference between the expected future settlement and its present value. Assuming that there is a material difference, the calculation of the present value requires the use of an expected value for the delay in verdict.

The delay in verdict of the trial is represented by the random variable, N . The defendant attorney has estimated $a = \text{one (1) year}$, $m = \text{three (3) years}$ and $b = \text{ten (10) years}$ for the random variable N . Applying these estimates for the delay in verdict of the trial to the linear approximation of the expected value of the beta distribution, the expected value for the delay in verdict of the case is $E(N) = (2 + 4 * 3 + 10) / 6 = 4$ years.

The expected loss from pending litigation case adjusted for inflation and discounted to the present value is calculated as

$$\begin{aligned}
 E(C_{T, aj}) &= E(A) / (1 + r)^n + \sum_{k=1}^n [\frac{E(C_L)}{n} / (1 + r)^k] \\
 &= E(A) / (1 + r)^n + \frac{E(C_L)}{n} (A_{oA, n, r}) \quad (6)
 \end{aligned}$$

where $E(A)$ is the expected value of the damages awarded at verdict; $E(C_L)$ is the expected value of litigating the case including the cost of the trial; $n = E(N)$, is the expected value of the delay in verdict of the case; r is the company's cost of capital used as the discount rate; and $A_{oA; n, r}$ is the present value of an ordinary annuity of n periods discounted at $r\%$. In the case illustrated, $E(A) = \$485,000$; $E(C_L) = \$82,500$; $n = E(N) = 4$ years; and the discount rate, r , is assigned a rate of 10% resulting in a value of $A_{oA; n=4, r=10\%} = 3.17$. Thus,

$$\begin{aligned} E(C_{T, aj}) &= \$485,800 / (1.05)^4 + (\$20,625) * 3.17 \\ &= \$331,801 + 65,381 \\ &= \$397,000 \text{ (rounded)} \end{aligned}$$

Recall that financial reporting standards for loss contingencies state that when the reasonable estimation of a loss is a range of outcomes and one amount within the range appears to be a better estimate than any other amount, that amount is to be accrued if the occurrence of the loss is judged as probable. (FASB 1975, *Interpretation No. 14 para 14*). Arguably, the loss estimate of approximately \$397,000 calculated from the beta distribution model is better than any other potential outcome of the case within the range bounded by the defense attorney's optimistic and pessimistic assessments.

The most likely probability of losing the case was assessed by the client's attorney to be 60% and the expected value of the probability of losing the case was calculated to be 56%. If the client's management accepts these probabilities as indicating there is only a reasonable possibility of incurring the estimated loss, a loss of \$397,000 will be disclosed in the notes to the company's financial statements. If the probabilities are accepted as indicating the estimated loss is probable,

the defendant corporation will accrue the estimated loss and report \$397,000 on its income statement as part of its operating expenses. Using a 40% marginal income tax rate, the company's net income will decrease by \$238,000. The company will report a contingent liability of \$397,000 as part of its long term liabilities and \$159,000 as a non current deferred tax asset.

The accrual would cause reported earnings per share to decrease and the company's debt ratio to increase. If indeed the company does make such a payout in the future, failure to make the accrual at the time the loss was assessed to be probable could have mislead investors about the company's financial status because of the overstatement of earnings per share and understatement of the debt ratio.

CONCLUSIONS

The SEC has recently taken the position that the practice of companies limiting the disclosure of loss contingencies to vague statements that address litigation, income tax disputes, or other risks in general terms; and reporting that no losses are expected from contingencies right up to the time an agreement for a large settlement is made is not acceptable. Although companies may have demonstrated compliance with the rules stated in the loss contingency standards, such a practice does not appear to communicate the full story of companies' loss contingencies.

The authors believe that the loss estimation model proposed in this article can contribute to solving the problem of inadequate communication of loss contingencies. The model can be used to provide meaningful estimates for litigation contingency cases that have at least a reasonable possibility of the plaintiff being awarded damages. For cases judged to be probable of resulting in a payout, the ability to accrue estimates for loss contingencies provides additional

assurance that a company's earnings per share is not overstated and its debt ratio is not understated. When loss estimates for such litigation cases are disclosed, independent auditors have more assurance that companies are in compliance with the spirit of generally accepted accounting principles and hence are exposed to less risk when issuing an unqualified audit opinion. Certainly auditors have the professional responsibility of protecting investors from misleading information.

The ability to calculate meaningful litigation loss estimates may also be useful in negotiating out of court settlements or as a starting point for settlement during a trial. Many defendants prefer to make out of court settlements in order to avoid expensive litigation fees if a case is brought to trial. A fair settlement proposed early in a trial may even shorten the duration of the trial.

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