Section H – Credit Standing and Fair Value Liabilities

A highly controversial proposed adjustment to estimated cash flows in the determination of fair value liabilities is the impact of the entity's (or obligor's) own credit standing. Under some proposals, the weaker the obligor's financial situation, the lower the fair value of their liabilities would be. This adjustment would recognize that a financially weak company would be less likely to satisfy its obligations in full than a financially strong company.

This issue may not be material for most insurers, as it is very difficult for an insurer to be both viable and of questionable financial health. Companies viewed to be strong financially have historically experienced very small rates of default.[56] Therefore, the concern and controversy surrounding this issue is focused largely on its impact on troubled companies.

This section of the white paper presents the arguments for each side of the issue, without stating an overall preference. It also discusses the issues associated with estimating, implementing and presenting liabilities that reflect the obligor's credit standing.

This section is organized as follows:

- Arguments ***for*** reflecting credit standing in fair valuing liabilities.
- Arguments ***against*** reflecting credit standing in fair valuing liabilities.
- Methods for estimating this effect.
- Presentation issues.
- Implementation issues.

Arguments for reflecting credit standing in fair valuing liabilities.

- Credit risk is reflected in the fair value of assets, and the assets and liabilities should be valued consistently.
- The public debt of a company has a market value, and that market value reflects the debtor's credit standing. Hence, requiring a company to report their publicly issued debt (a liability for them) at market value leads to requiring them to reflect their own credit standing when valuing a liability. The alternative, not requiring a company to report such debt at market value, would allow a company to manipulate its earnings by buying back existing debt or issuing new debt.
- If public debt is to be held at a fair value that reflects credit standing, then all liabilities should be reported at a fair value that reflects credit standing. This is the argument FASB made in their Concepts Statement Number 7, paragraph 85.
- Parties owed money by a company of questionable solvency will frequently settle for less than the stated amount of the obligation, due to the risk of possibly getting much less if that company (i.e., the obligor) goes insolvent. In other words, reflecting an entity's own

[56] One year default rates for debt rated A or above (by Moody's) were less than 0.1%, for 1983-1999. Ten-year default rates for the same rating category were less than 4%, for 1920-1999. Source: January 2000 report by Moody's on Corporate Bond defaults from 1920-1999.

credit standing in valuing its liabilities reflects the true market cost to settle those liabilities.

- The obligor's credit standing is easily measurable, at least in those jurisdictions where established rating agencies exist.
- Due to limited liability, the owners' interest (e.g., as reflected in share price) of a company can never go below zero. Thus, the fair value of its equity is always greater than or equal to zero. If the fair value of the equity is greater than or equal to zero, and the fair value of the assets is less than the contractual "full value" liabilities, then the fair value of the liabilities must be less than this "full value."

Arguments against reflecting credit standing in fair valuing liabilities.

- There is no active market for such liabilities; hence there is no reliable way of measuring this adjustment for credit standing.
- Users of financial statements could be misled as to the financial strength of weak companies.
- A liability valuation that reflects the liability holder's credit standing would not be relevant to a potential "buyer" of the liability. In the insurance situation, and possibly other situations, the buyer would not be able to enforce the same credit standing discount on the obligee. The obligee would view the prior liability holder's credit standing as totally irrelevant. Hence, the buyer would also view the credit standing of the liability seller as irrelevant to the liability's market value.
- An obligor's financial statements that included a reduction in the fair value of its liabilities due to the obligor's credit standing would not be relevant to creditors.
- An insurance company's principal product is its promise to pay. In return for cash up-front, an insurance company sells a promise to pay in the event of a specified contingency. If an insurer attempts to pay less than the full initial promise, due to its weakened credit standing, it is in effect abandoning its franchise. In fact, a troubled company that is trying to remain a going concern will do all it can to pay the full amount, in an attempt to retain its franchise. As such, reflection of credit standing in the estimation of fair value liabilities is counter to going-concern accounting, and is relevant only to liquidation accounting for a runoff business. (The party trying to collect from a troubled company is also arguably negotiating under duress. As such, any settlement amount they would arrive at would not meet the definition of "fair value.")
- If credit standing is reflected in liability valuation, then favorable business results could cause a drop in earnings, due to an improved credit standing increasing the fair value of liabilities. Likewise, unfavorable results that lead to a drop in credit standing could result in earnings improvement. This is counterintuitive and noninformative.
- It does not make sense to reflect credit standing in the value of liabilities without also reflecting the impact of credit standing on intangibles. A company with a worsening credit standing may see the fair value of its liabilities decrease, but it would also see the fair value of various intangibles, such as franchise value, decrease. In fact, the existence

of the intangible franchise value helps keep insurers from increasing their operational risk in order to increase shareholder value at the expense of policyholders. Therefore, while the fair value of a company's liabilities may be decreasing as credit standing decreases, it is offset by an item not to be reflected in the fair value accounting standards as currently proposed by the FASB and IASC. If intangibles are not to be estimated nor reflected in a fair value standard, then the impact of credit standing on the liabilities should not be reflected.

- Credit standing is (usually) an attribute of the corporate whole, not the individual business segments. Hence, business segment reporting could be complicated drastically by this approach, as the segment results would not add to the corporate whole without an overall credit standing adjustment.
- To the extent that the credit standing adjustment is based on the obligor's judgment, a potential moral and ethical dilemma exists. Management may be forced to state the probability that it won't pay its obligations at the same time that it may be professing before customers, partners, capital providers, etc. its integrity, financial soundness and full intent to meet all obligations.
- If an entity's own credit standing is reflected in valuing their liabilities, and the valuation considers the reduced amounts their policyholders may be willing to accept as claim settlement, some companies may be motivated to employ unreasonably optimistic assumptions in setting their reserve levels. Troubled companies may be incented to anticipate that claim settlements will be resolved on extremely favorable terms and hence record an inappropriate reserve.

Methods for estimating the impact of credit standing on liabilities, if included in the fair value definition.

Our task force was able to envision several methods that might be used to estimate this credit risk adjustment. Four such methods are listed here. It is important to note that, to our knowledge, none of these methods have actually been used to estimate the fair value of liability default for property-liability insurers in any practical setting. The first three methods are discussed in more detail in the appendix, including examples.

Method 1 - Implied Option Value

The reflection of credit standing in the valuation of fair value liabilities (i.e., the "credit risk adjustment") involves estimating the expected fair value of liability default. In the finance literature, the default value has been shown as equivalent to a put option on the insurer's assets.[57]

[57] Cummins, J. David, 1988, Risk-Based Premiums for Insurance Guaranty Funds, Journal of Finance, September, 43: 823-838. Also,
Doherty, Neil A. and James R. Garven, 1986, Price Regulation in Property-Liability Insurance: A Contingent-Claims Approach, Journal of Finance, December, 41: 1031-1050. Also,
Derrig, Richard A., 1989, Solvency Levels and Risk Loadings Appropriate for Fully Guaranteed Property-Liability

Thus, the theory underlying the credit risk adjustment (in the insurance context) is that the fair value of owners' equity is increased by the value of the option implicitly given to the equity owners by the policyholders. If the liabilities are measured without the credit risk adjustment, then the fair value of the owners' equity is understated.

The implied option value can be determined by the method of Ronn and Verma[58], which is used in the Allen, Cummins and Phillips analysis.[59] Under this method, the market value of the firm's assets is first estimated. Then the implied volatility of the firm's market value is estimated from the Black-Scholes formula for the value of the equity owners' call option.[60] Other inputs required for this estimation are the undiscounted liability value, the average time until payment of the liabilities and the risk-free interest rate.

Once the above inputs are obtained, the default value is determined by applying the Black-Scholes option model with a set time to expiration and an exercise price equal to the expected liability value at the end of the same time horizon. The call option is valued relative to the asset market value. The Appendix provides an example of the calculation.

Advantages

- For publicly traded insurers, this approach can provide results using an insurer's own data.
- The method is relatively straightforward in terms of the complexity of the calculation.
- The method has been used to measure default risk for both insurance firms and banks. It is well known in the finance literature.

Disadvantages

- This method can only be done for publicly traded companies.
- It is difficult to carve out the property/casualty pieces of firms that have non-property/casualty business segments.
- The method is sensitive to variations in input values.
- The method relies on accounting value of liabilities. This presents problems with measuring reserve adequacy.
- It ignores side guarantees or implicit guarantees, such as that from a majority owner with a reputation to uphold. Such an entity cannot afford to walk away without losing brand-name value. It also ignores the side guarantee arising from an insurance guaranty fund.

Insurance Contracts: A Financial View, Financial Models of Insurance Solvency, J. D. Cummins and R. A. Derrig eds., Kluwer Academic Publishers, Boston, 303-354. Also,
Butsic, Robert P., 1994, "Solvency Measurement for Property-Liability Risk-Based Capital Applications", Journal of Risk and Insurance, 61: 656-690.

[58] Ronn, Ehun I., and Avinash K. Verma, 1986, Pricing Risk-Adjusted Deposit Insurance: An Option-Based Model, Journal of Finance, 41(4): 871-895.

[59] Allen, Franklin, J. David Cummins and Richard D. Phillips, 1998, "Financial Pricing of Insurance in a Multiple Line Insurance Company", Journal of Risk and Insurance, 1998, volume 65, pp. 597-636.

[60] Black, Fischer and Myron Scholes, 1973, The pricing of Options and Corporate Liabilities, Journal of Political Economy, May-June, 81: 637-659.

- It may ignore the relative credit-worthiness for different lines or entities within the corporate total, if they have separate publicly traded securities.

Method 2 - Stochastic modeling using Dynamic Financial Analysis (DFA)

Stochastic modeling is frequently used in Dynamic Financial Analysis to model insurance company operations. The process typically involves modeling assets, liabilities and future income from the runoff of reserves as well as new business. Key variables driving outcomes are modeled using probability distributions.[61] In addition to projections of future cash flows, stochastic DFA models can produce Statutory and GAAP balance sheets and income statements.

DFA models attempt to incorporate the dynamics of the insurance business by including interactions between the different variables. Some DFA models also attempt to model the underwriting cycle.

Among the outputs of stochastic DFA models are probability distributions of future surplus. They can be used to compute the expected policyholder deficit (the expected cost of default), or the average amount of unpaid liabilities, should the company experience insolvency in the future. Insolvency would be deemed to have occurred whenever the company's surplus dropped below a pre-specified level.

Advantages

- The method is insurer-specific.
- The method can be applied to all insurers.
- A comprehensive DFA model can better incorporate important company-specific risk factors than the other methods.
- Many companies currently use these models to make strategic business decisions. A great deal of research effort has recently been devoted to their development.

Disadvantages

- Good DFA models tend to be complex and are therefore labor-intensive and expensive. (However, if an insurer already has such a model, adapting it to estimate credit risk may require little additional cost.)
- DFA models are designed to work off of data. They may not reflect risks that are not in the historical data.
- Not all insurers currently have these models, since their management has determined that they are not worth the cost. Insurers would need the models to be tailored to the unique features of their business.
- There is presently not enough expertise available to construct a suitable DFA model for each insurer.
- The models may not produce comparable results for similar companies, due to different model structures and parameter assumptions.
- The ability of these models to reliably estimate insolvency probabilities is not universally accepted. Many believe that these models are stronger at estimating the normal variation

[61] This is a feature of stochastic DFA models, but not necessarily all DFA models.

resulting from the current processes, and not the shocks and paradigm shifts that may be more likely to be the cause of an insolvency. Therefore, they may not be reliable when applied to the stronger companies (although these companies are not expected to have a material credit-standing adjustment).

- It may be impractical to model insolvency for large, multinational or multi-industry conglomerates.
- Business and legal problems may exist for companies estimating their own probability of reneging on their obligations, either directly or through a DFA model estimate.

Method 3 - Incorporate historic default histories by credit rating from public rating agencies.

This method would use publicly available historic default rates by credit rating, based on the entity's current credit rating from A. M. Best, S&P, Moody's or some other public rating service. At least one of these rating services (Moody's) publishes historic default rates by credit rating, for a one year and multiple-year horizon, by year and averaged over several decades. These default rates would allow determination of the expected default rate — some other method would have to be used to determine the risk premium associated with this expected value.

Advantages

- Simple to use and explain, when using the expected cost of default from the public data.
- Requires little direct analytical cost to the insurer.
- Avoids an entity having to estimate its own probability of reneging on promises.

Disadvantages

- Ambiguity would exist if the various public ratings are not consistent. For example, it is common for the ratings from Moody's and S&P to differ. This would add judgment to the process and potential manipulation.
- Not all companies are rated.
- A single rating may exist for the enterprise (such as a group rating), that may not be appropriate for a particular group member or a line of business.
- Would require default history for a given rating. These may not be available from some rating agencies.
- Requires ratings to be consistently applied over time. This may not be the case, as rating methodologies change over time.
- Ratings may exist for debt, but not for all other liabilities. This problem could be compounded by the existence of guaranty funds, particularly where those guarantees vary by state and line.

Method 4 - Utilize credit risk-based spreads observable in public debt.

This method would utilize observed interest rate spreads on public debt to quantify the credit risk adjustment. Public debt has no amount risk, other than default risk, and no timing risk (absent call provisions). Hence, it can be used to isolate the market's pricing of credit risk. The discount that the market places on a dollar owed at time X, given a credit rating of Y, compared to the same market value for a dollar owed at time X by the U.S. government, quantifies the credit risk adjustment for a time horizon of X, rating of Y.

Ideally, this would be done based on the market value for each company's publicly held, noncallable debt. If not available, then public debt of companies with a similar credit standing (as measured by a public rating agency) could be used instead.

It may also be possible to use the developing market for credit derivatives rather than public debt in applying this approach.

Advantages

- Relatively simple to use and explain.
- Requires little direct analytical cost to the insurer.
- Avoids an entity having to estimate its own probability of reneging on promises.
- Consistent with credit risk adjustment for public debt issued by the same entity.
- Relies heavily on market-based values rather than internal estimates.

Disadvantages

- Requires information on a range of public debt instruments that may not exist for all companies. The entity may not have any actively traded public debt, or may not have a broad enough range of noncallable public debt to handle all the time horizons of interest.
- Where reliance is made on other entities' public debt with similar credit standings, it requires a determination of whether or when another entity has a similar credit standing. This adds additional judgment and estimation to the method.
- Debt holders credit risk is not perfectly aligned with policyholder credit risk. Due to the different priorities of creditors in a bankruptcy or insolvency proceeding, the amount recoverable under a bankruptcy could be drastically different for policyholders as opposed to debt holders. In addition, since debt is frequently at the holding company level, it is possible that the bankruptcy administrator could arrange for a buyer to take over the insurance operation such that the policyholders would be made "whole", at the expense of the debt holders.
- Does not allow for guaranty funds or other side guarantees not applicable to public debt. These guaranty funds and side guarantees can also vary by state and line, further distancing the public debt information from the task at hand.
- The public debt may only exist for the enterprise (e.g., parent or holding company), which may include many other businesses and operations besides the insurance operation. The net credit risk may actually vary drastically by operation, so that the enterprise's public debt credit risk is not indicative of the insurance operation credit risk.
- To the extent that the observed debt is callable, this could distort the application of observable spreads to liability credit standing adjustments.
- Observed spreads versus U.S. Treasuries could include factors other than credit risk, such as relative liquidity.

Presentation issues.

The following are a few presentation issues surrounding the reflection of credit standing in the fair value of liabilities, assuming that such a reflection is made.

- ***Historical loss development*** - Should historical loss development include the impact of changing credit ratings (of the liability holder)? Choices are to include this impact, to

exclude this impact, or include this impact but separately disclose this impact.

- ***Current balance sheet impact*** - The task force generally agreed that the current impact of credit standing reflection on the balance sheet should be disclosed, so as to provide useful information for those interested in the total legal obligations of the entity.
- ***Impact on income*** - Should the impact of credit standing reflection be separately disclosed when reporting period earnings?
- ***Impact on segment results*** - Most financial statements include various types of "segment" disclosures, i.e., disclosures about certain business or operating segments of the business. Current U.S. statutory reporting also includes many disclosures by product or line-of-business. Where a corporation's debt is held principally at the holding company corporate level, and not at the segment or operating level, it many not be appropriate to reflect credit standing adjustments in business or operating segment results. In such a case, credit standing adjustments would be reported only at the total corporate level, as an overall adjustment to the business segment "pieces." Alternatively, credit standing could be incorporated at the business-segment level, at the cost of potentially misstating the earnings or value of the business segment.

  If reported at the business-segment level, credit standing adjustments could distort reported business-segment results in another way. Consider the case where most debt is at the holding company level, the total corporate credit standing is weak, and the principal cause is a single business unit. If credit standing is reported at a detail level, operating earnings of the stronger business units would be impacted by the results of the unrelated, poorly performing unit. Worsening results in that poorly performing unit could lead to improved earnings (due to reduction in liability valuations) for the stronger units, while improving results for the poorly performing unit could cause lower earnings for the stronger units.

Implementation issues. The following are some possible implementation issues associated with reflection of credit standing in fair value estimates.

- ***Multiple credit standings.*** - It is possible for the different entities in a corporate whole to have different credit standings. For example, it is conceivable that the flagship of a quota share pool may be weaker than one of the quota share pool members. In such a case, it may be difficult to quantify all the differences, especially if all the publicly available data regarding credit standing is applicable only for the pool flagship.
- ***Incorporating credit standing adjustments when multiple risk adjustment methods are used***. - Section D discussed several different methods for estimating the fair value risk adjustment. It is possible a single company would find itself using different methods for different lines. It may be difficult to incorporate the chosen credit standing adjustment consistently into the results of these various methods.

Section H – Credit Standing and Fair Value Liabilities

- ***Consistent treatment where offsets exist***. - Some liabilities have corresponding offsets, recorded either as assets, contraliabilities, or even as other liabilities. Examples include accrued retro premiums for retrospectively rated business, deductible recoverables, and contingent commissions. If a liability is valued in a manner that reflects the obligor's credit standing, then the valuation of offsets for that liability should also be impacted in a consistent manner. This may not be a simple task, and may materially complicate the estimation process for both the direct liability and the offsets.
- ***Guaranty fund reflection***. - The credit standing adjustment of a liability could be materially impacted by any guaranty fund (or similar) protection. The rationale is that the party owed money (e.g., a claimant) may be unwilling to consider lowering their cash settlement demands despite the financial weakness of the obligor, to the extent that there is backup protection provided by a guaranty fund. Guaranty funds do not exist for all lines nor in all states. They typically provide less than full protection (e.g., many funds cap the benefits, and may pay claims only after significant delays). As such, proper reflection of guaranty fund impacts may be very difficult, especially for a writer of multiple products in multiple states.
- ***Management dilemmas*** - It may be difficult for management to value its liabilities reflecting less than full contractual obligations, at the same time it is making assurances and promises to consumers and creditors, especially when the impact of the credit standing is significant.
- ***Auditor dilemmas*** - Whoever audits a company reporting fair value liabilities lowered for credit standing impacts may find itself in the same position as a rating agency. That is, it may be forced to quantify the likelihood of client solvency when auditing their financial statements. This may be outside their normal expertise, and could open up additional areas of auditor liability.