

Bond Insurance: Introducing a Better Business Model

Mark Adelson and George H. Butcher III*

Today's bond insurance industry has lost the ability to create value for the great majority of municipal bond issuers. Despite an environment of wide credit spreads, the weakened state of the active bond insurers has virtually eliminated their ability to improve pricing for issuers at or above the single-A credit grade. The underlying problem is that the bond insurers and the credit rating agencies embrace a business model for the sector that presumes an ability to accumulate resources in the future, after the onset of stress. The presumption causes the bond insurers to hold too few existing resources in relation to their insured risks and undercuts both their credit quality and the pricing effect of their guarantees. The solution is an alternative business model that entails a much higher level of existing claims-paying resources in relation to the insured risks. Contingent capital securities provide a cost-effective vehicle for accumulating such resources. Combined with certain operating rules and continuous quantitative testing of credit quality, the new business model can create a truly strong, stable, and transparent bond insurer.

Today's bond insurance industry struggles to maintain a presence in the municipal bond market. According to conventional wisdom, the use of bond insurance has declined because municipal credit spreads are narrow. However, the conventional wisdom conflicts with the facts. Although absolute yields have been low for a long time, municipal credit spreads have been consistently wider in the years following the financial crisis than in the years preceding it. This suggests that the demand for high-quality credit enhancement should be greater today than before the financial crisis.

Why then, has the use of bond insurance declined? The answer lies in the market's perception of the bond insurers. While post-2008 municipal credit spreads have been wide compared to earlier periods, the benefit that can be generated with bond insurance relative to a single-A credit has actually narrowed as compared to pre-crises levels. Before the financial

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crisis, when nearly all bond insurers carried triple-A credit ratings, insured municipal bonds commanded credit spreads almost on par with those of “natural” double-A-rated general obligation bonds (GOs). Following the financial crisis, new insured municipal bonds have commanded credit spreads closer to those of natural single-A-rated GOs. Thus, the portion of newly issued municipal bonds for which today’s bond insurers can create a pricing benefit has become much smaller than it was before the crisis.

Again, why? The experience of the financial crisis revealed the weaknesses in the traditional bond insurance business model. The business model relied on the notion that, if it needed to, an insurer could raise substantial claims-paying resources during a period of stress. That notion turned out to be mistaken. Although bond insurers managed to raise some additional resources after the onset of stress, they were not able to raise enough to preserve their credit quality. Moreover, believing that they could amass future resources after the onset of stress encouraged them to hold too little before the start of the crisis. Holding too little claims-paying resources was the key flaw in the business model. Ultimately, for most, it was their ruin. Most of the pre-crisis insurers have effectively gone out of business.

A potential solution is an alternative business model: one that does not rely on the notion that a bond insurer’s credit strength comes from its ability to raise additional claims-paying resources in the future. Instead, the new business model relies only on an insurer’s *existing* claims-paying resources as the source of its strength. Such an approach is consistent with broader insurance industry norms and has the potential to create a strong, stable, and transparent bond insurer that can achieve full recognition of its strength in the market.

A key feature of the new business model is continually accumulating claims-paying resources through the issuance of contingent capital securities. When properly structured to present low risk to investors, such securities offer a highly cost-effective means for accumulating claims-paying resources. A second key feature of the new business model is closely matching the cash flows from claims-paying resources with insured risks. Monte Carlo computer simulation allows for quantitatively testing the ability of resource cash flows to cover insured risk to any chosen confidence level. Using an extremely high confidence level in that testing and relying on cash flows rather than on selling assets eliminates the risk of market-value fluctuations in the claims-paying resources.

This article is organized into five parts. The first is this introduction. The second part discusses yields and spreads on municipal bonds over time and particularly examines the relationship between yields on insured and uninsured municipal bonds. The third part discusses the experiences of the bond insurance industry through the financial crisis. The fourth part

introduces an alternative business model of bond insurance and discusses the mechanics of the model. The fifth part concludes.

THE REAL STORY ON MUNICIPAL YIELDS AND SPREADS

Municipal bond yields have been on a generally declining trend for most of the past 35 years. By contrast, credit spreads between municipal bonds at different credit grades have been markedly wider following the financial crisis than they were before. Figure 1 shows the yields on 15-year GOs at the triple-A and single-A credit grades, as reported by Thomson Reuters. The figure shows the overall trend and also reveals that yields have been at *very* low levels since the start of 2012. It also shows that the spread between the single-A yield and the triple-A yield has been notably wider since early 2009 than it was in the earlier years.

Figure 2 focuses on the spread. It shows the spreads between the yield on 15-year, triple-A-rated GOs, and 15-year GOs at lower credit grades. The change in credit spreads from before the financial crisis to afterwards is apparent. It indicates that investors ascribe more value to improving credit quality now than they did before the crisis. It suggests that demand for bond insurance that really could boost credit quality would be quite strong.

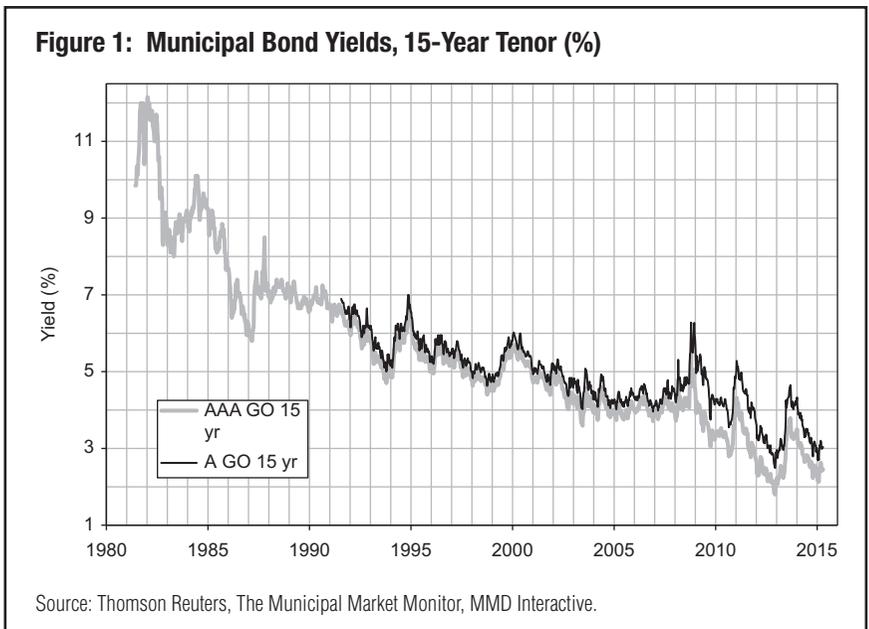
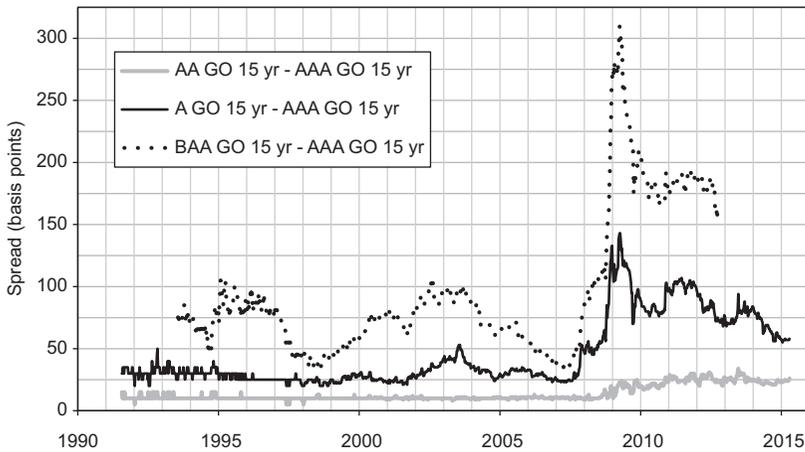


Figure 2: Municipal Bond Credit Spreads, 15-Year Tenor (Basis points)

Source: Thomson Reuters, The Municipal Market Monitor, MMD Interactive.

Naturally, the widening of credit spreads is not confined to bonds with tenors of 15 years. The phenomenon extends across the maturity spectrum. Table 1 highlights this, comparing the average levels of the credit spreads during two different periods, 1995 to 2005 and 2010 to 2014. As shown in the table, credit spreads widened for all credit grades across the full range of maturities—in virtually every instance, the widening exceeds pre-crisis spreads.

Against the backdrop of overall movements in municipal credit spreads, the spread on insured municipal bonds was changing with its own dynamic. As the financial crisis unfolded, the condition of the bond insurers weakened. The market noticed, and the spread on newly issued insured bonds shifted from being almost exactly at the level of double-A-rated GOs to roughly the level of single-A-rated GOs. Figure 3 shows what happened:

As a consequence, a bond insurer's ability to create value for issuers of single-A-rated bonds was severely diminished. One way to assess the change is to consider the proportion of spread reduction that a single-A-rated issuer might achieve by using bond insurance (before taking account of premium). During the period 2000 to 2005, a single-A-rated GO issuer might have reduced its spread on average (relative to triple-A GOs) by 19 basis points for a 15-year maturity—a reduction of roughly 60% (from 31bp to 12bp). By contrast, during the period 2010 to 2014, the average spread reduction would have been 11 basis points—a reduction of 14% (from 82bp to 71bp; Figure 4).

Table 1: Comparison of Average GO Credit Spreads During 1995–2005 with Spreads During 2010–2014 (basis points)

		AA vs. AAA	A vs. AAA	BAA vs. AAA
5-year tenor	1995–2005	9	26	69
	2010–2014	16	61	154
	Widening	7	35	85
10-year tenor	1995–2005	10	29	77
	2010–2014	23	80	167
	Widening	13	51	90
15-year tenor	1995–2005	10	29	72
	2010–2014	24	82	162
	Widening	14	53	90
30-year tenor	1995–2005	10	24	61
	2010–2014	23	74	140
	Widening	13	49	79

Source: Thomson Reuters, The Municipal Market Monitor, MMD Interactive.

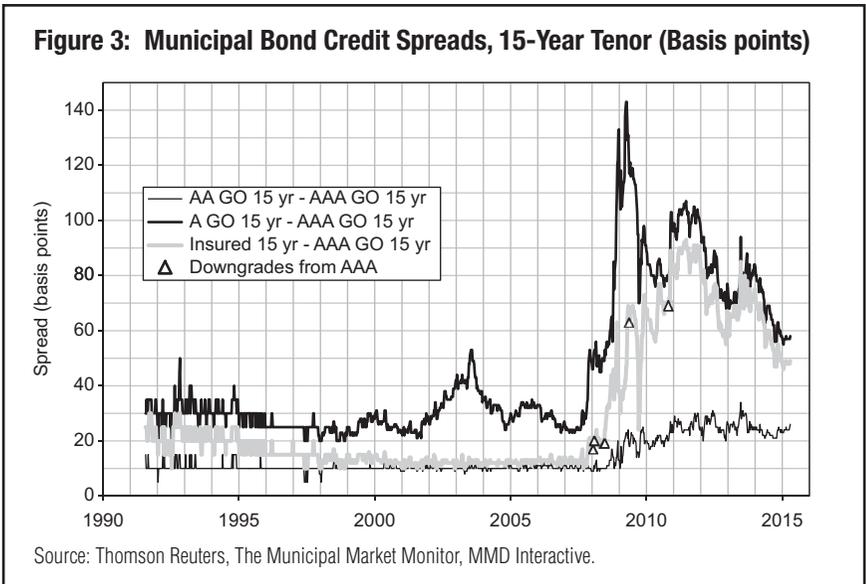
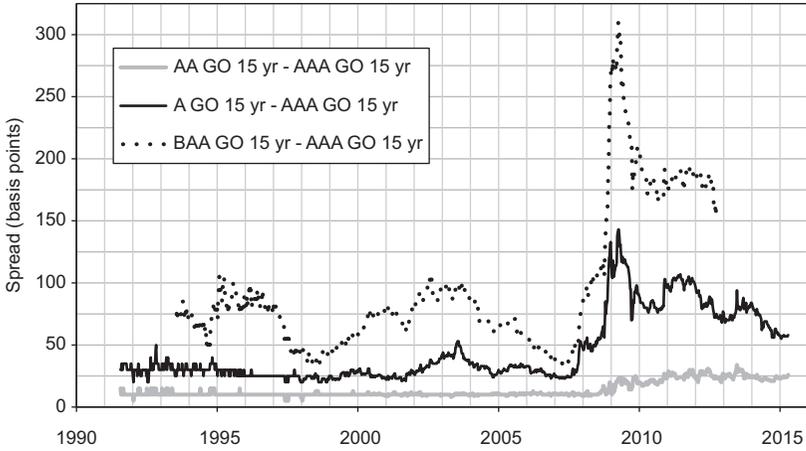


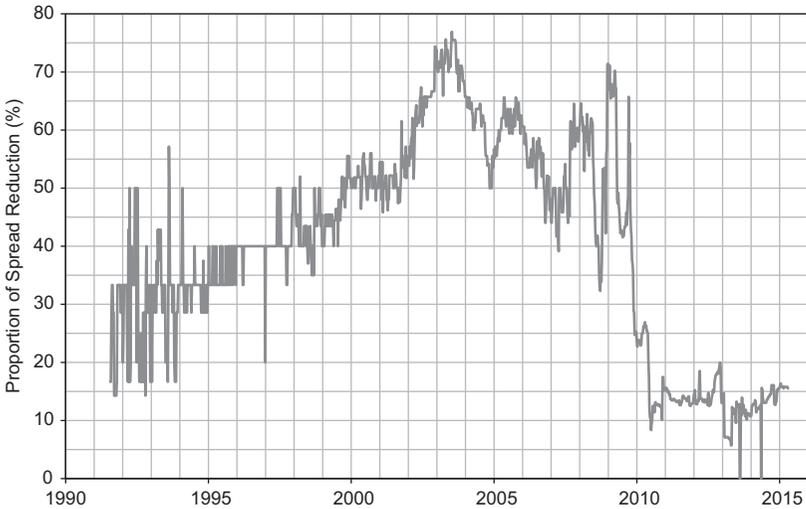
Figure 5 shows the proportion of spread reduction that bond insurance produced over time. While the single-A vs. triple-A GO spread has more than doubled, the benefit created by insurance for a single-A-rated GO has declined markedly.

Figure 4: Average Municipal Bond Spreads, 2000–2005 and 2010–2014, 15-Year Tenor



Source: Thomson Reuters, The Municipal Market Monitor, MMD Interactive.

Figure 5: Proportion of Spread Reduction for a Single-A-Rated GO Issuer Using Bond Insurance, 15-Year Tenor (%)



Source: Thomson Reuters, The Municipal Market Monitor, MMD Interactive.

A CLOSER LOOK AT WHAT HAPPENED TO THE BOND INSURANCE INDUSTRY IN THE FINANCIAL CRISIS

There were nine active bond insurance companies in the United States before the financial crisis. Seven of them carried triple-A ratings from the major rating agencies at the start of 2007. All embraced the business model in which credit strength relied on the presumption that they could raise substantial additional claims-paying resources after the onset of stress.

Bond insurers’ credit quality started to decline before the start of 2009. By the start of 2011, only two of those companies—Assured Guaranty Corp. (AGC) and Assured Guaranty Municipal Corp. (AGM)—maintained sufficient strength to continue writing new policies (see Table 2).

By itself, the credit quality decline shown in Table 2 calls into question the pre-crisis bond insurance business model. However, the financial crisis provided evidence that was even more direct. It revealed that the bond insurers’ ability to amass resources *after* the onset of stress was quite limited. Table 3 shows summary data on credit losses and capital infusions during the financial crisis for selected bond insurers at the holding company level. The table shows that none of the companies was able to amass new resources to cover the losses that it incurred.

Table 2: Credit Deterioration of Bond Insurers That Existed Before the Crisis

	Financial Strength Ratings at Start of Year (Moody’s/S&P/Fitch)				
	2007	2009	2011	2013	2015
ACA Financial	NR/A/NR	NR/NR/NR	NR/NR/NR	NR/NR/NR	NR/NR/NR
AMBAC Assurance Corp	Aaa/AAA/AAA	Baa1/A/NR	Caa2/NR/NR	NR/NR/NR	NR/NR/NR
Assured Guaranty Corp	Aa1/AAA/AAA	Aa2/AAA/AAA	Aa3/AA+/NR	Aa3/AA-/NR	A3/AA/NR
Assured Guar. Municipal Corp., f/k/a Financial Security Assurance	Aaa/AAA/AAA	Aa3/AAA/AAA	Aa3/AA+/NR	Aa3/AA-/NR	A2/AA/NR
CIFG Assurance N. America	Aaa/AAA/AAA	B3/B/NR	NR/NR/NR	NR/NR/NR	NR/NR/NR
Financial Guaranty Ins. Co	Aaa/AAA/AAA	Caa1/CCC/NR	NR/NR/NR	NR/NR/NR	NR/NR/NR
MBIA Insurance Corp	Aaa/AAA/AAA	Baa1/AA/NR	B3/B/NR	Caa2/B/NR	B2/B/NR
Radian Asset Assurance	Aa3/AA/AA	A3/BBB+/NR	Ba1/BB-/NR	Ba1/B+/NR	Ba1/B+/NR
Syncora Guarantee Inc. f/k/a XL Capital Assurance	Aaa/AAA/AAA	Caa1/B/NR	Ca/NR/NR	NR/NR/NR	NR/NR/NR
Source: Bloomberg.					

Table 3: Credit Losses and Capital Infusions for Selected Bond Insurance Holding Companies (\$ billions)

Holding Company	Credit Losses	Capital Infusions
Ambac Financial Group	12.0	1.4
MBIA Inc.	5.7	2.5
Syncora Holdings Ltd	2.0	0.3
Assured Guaranty Ltd	1.6	1.0
Radian Group	1.1	0.7

Source: Bloomberg WDCI <GO>.

Today's Active Bond Insurers Still Use the Old Business Model

Despite the great weight of evidence that the old business model did not work, the industry has continued to use it. The holding companies of Assured and MBIA each created a new subsidiary. MBIA Inc. created National Public Finance Guarantee Corporation (NPFGB) in 2009 by separating its municipal bond insurance activities from its structured finance insurance activities. Assured Guarantee Ltd. created Municipal Assurance Corp. (MAC) in July 2013 and seeded the new entity with a portfolio of high-quality municipal exposures. Both NPFGB and MAC are based on the classic bond insurer business model.

In addition, two completely new companies joined the industry. Berkshire Hathaway created Berkshire Hathaway Assurance Corporation (BHAC) around the start of 2008. The company was a very strong credit, and its strength was primarily attributable to a support from an affiliate within the Berkshire Hathaway family of companies. The market recognized BHAC's strength, and bonds with BHAC insurance priced with tighter spreads than other insured bonds. The company was active though mid-2009 but has written only a handful of new policies since then.

Build America Mutual (BAM) entered the industry in July 2012. BAM got started with financial backing from White Mountain Insurance Group and staffing by alumni of the former Financial Security Assurance (which Assured acquired in 2008). In contrast to the other companies, BAM was organized as a mutual insurance company. Apart from that feature, it adheres to the pre-crisis business model.

And So Do the Credit Rating Agencies

The major credit rating agencies shared the bond insurers' belief that the old business model could work. The pre-crisis credit rating methodologies specifically emphasized factors that relate to the issue of raising capital in the future. For example, S&P's 2006 bond insurance criteria article refers to *profitability* and *growth prospects* as important factors in the analysis

(Smith and Veno, 2006). Even the “capital model” described in the report includes assumptions about three years of future growth in both a company’s insured portfolio and in its claims-paying resources before the onset of stress conditions. Likewise, Moody’s analytic methodology from the same year emphasized *franchise value*, *strategy*, and *profitability* as key factors (Isaacs-Lowe et al., 2006). In fact, the Moody’s methodology even limited the weight that could be given to exiting resources because the cost of having too much in existing resources reflects “underutilized capital” and, implicitly, diminishes the ability to raise more resources in the future:

We also believe, however, that there are limitations to the benefit derived from excessively strong capital adequacy. For example, while a hard capital ratio of 1.8x may demonstrate conservative capital management that provides additional capital strength, a hard capital ratio above 2.0x suggests underutilized capital that has little incremental value in our evaluation of a firm’s capital base.

The major rating agencies still adhere to the same fundamental approaches. S&P’s 2011 bond insurance criteria retain a primary emphasis on factors relating to raising capital in the future. They include major analytic subcategories for (1) operating performance, (2) competitive position, and (3) management and strategy (Dubois-Pelerin et al., 2011). Those factors all look past the ability of a company’s existing resources to cover claims on its existing policies.

Moody’s post-crisis update to its methodology goes even further. Relative to the methodology that it replaces, it increases the emphasis on factors relating to future access to resources (Holmes, 2015). Moody’s old methodology assigned 50% weight to portfolio characteristics and capital adequacy and the new methodology drops the weight to 40%. Accordingly, the weight on other factors—the ones focused on amassing future resources—increased from 50% to 60%.

But there is also another issue not reflected in the rating agency methodologies: Consuming existing resources through the absorption of losses is the very thing that curtails access to future capital. In other words, only a fraction of a company’s existing resources can actually be used before the company’s stock price declines sharply and makes access to new capital impractical or impossible. This means that if an analysis of a company ascribes value to future capital, it should count existing resources only up to the point at which market access would be cut off. Use of a greater amount of existing resources would be offset by the loss of future market access.

Experience has shown that use of more than roughly 30% of an insurer’s resources to fund losses would effectively limit market access. Counting future resources should require that existing resources be significantly discounted. So, as a basis for assessing insurer credits against a triple-A standard, the better approach is to count just existing resources.

Other, soft considerations (e.g., poor underwriting) might cause an insurer's credit quality and ratings to be notched lower than would be indicated by the capacity of its existing resources to cover existing risks. However, the reverse is not true—other considerations cannot elevate a bond insurer's credit quality above the level supported by its current ability to cover the risk on its existing policies.

As noted above, the rating agencies' overemphasis on soft factors, such as "profitability" and "growth prospects," undervalues a company's existing claims-paying resources. In fact, as noted above, Moody's even held the view that increasing a bond insurer's capital above a certain level produces no benefit. However, under conditions of stress, there are no circumstances under which having more capital is a disadvantage or where having less capital is an advantage. Having less capital (i.e., higher leverage) arguably strengthens profitability measures before the onset of stress conditions. Profitability can support the growth of claims-paying resources if earned premiums are retained as surplus. However, it is hard to see how the potential to accumulate resources later can be better than having the same amount of resources on hand now.

Hybrid capital and contingent capital facilities are highly cost-effective ways of accumulating claims-paying resources before the onset of stress. Moreover, under stress, having more capital in the form of "hybrid capital" or "contingent capital" facilities is always better than having less capital. Ironically, the rating agencies' methodologies discourage insurers from strengthening their resources by using such facilities. The methodologies apply caps on the value that they ascribe to such facilities in the rating analyses. In broad terms, Moody's and S&P apply caps of 25% and 20%, respectively, to the proportion of hybrid and contingent capital facilities in a bond insurer's capital structure (Havlicek, 2010; Dubois-Pelerin et al., 2011; Sprinzen et al., 2008). The caps do more than just distort the rating agencies' analyses; they also make bond insurers weaker credits than they would otherwise be.

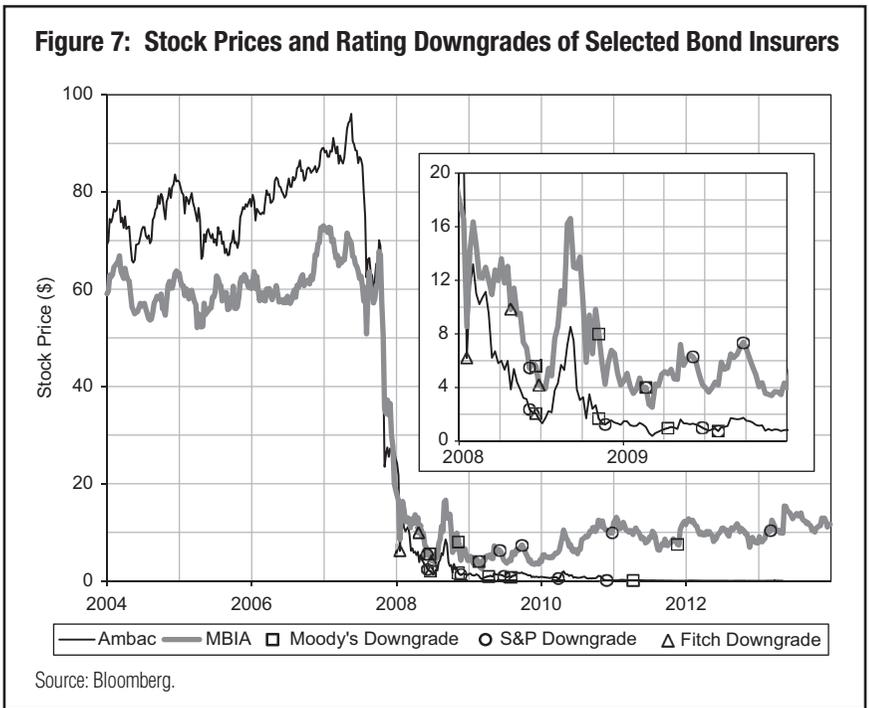
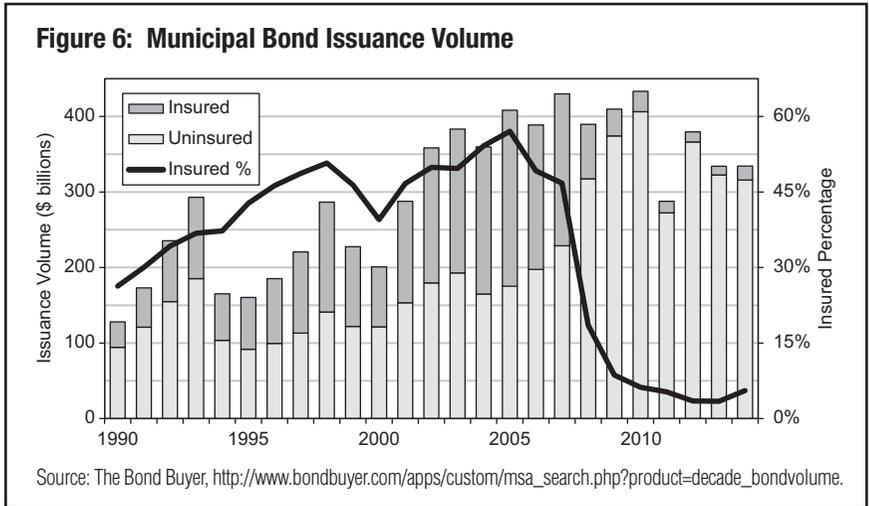
But the Market Disagrees

The market seems to disagree with the view held by the bond insurers and the major rating agencies. Even before the financial crisis, when the rating agencies maintained triple-A ratings on all the largest major bond insurers, the market did not price insured municipal bonds at the same level as "natural" triple-As. Instead, it priced them at roughly the same level as uninsured, double-A-rated GOs (see Figure 3). Following the financial crisis, the pricing of insured municipal bonds (except for those insured by BHAC) migrated to roughly the level of single-A-rated GO bonds.

Figure 3 also explains the dramatic drop in the use of bond insurance on newly issued municipal bonds following the crisis (see Figure 6). Given the market's assessment of their credit quality (as reflected in bond pricing),

the bond insurers now have less ability to add value on new issues than they did before the crisis. Indeed, as shown in Figure 3, bond insurers can add value only to issues that have spreads wider than the single-A index.

The decline in the bond insurer's fortunes shown in Figure 6 was also being reflected in their stock prices. Figure 7 shows the stock prices of selected pre-crisis bond insurers along with the timing of credit rating



downgrades. As shown in the figure, the stock prices of the two largest bond insurers suffered sharp declines from late 2007 into early 2008. Beyond that point, their ability to raise additional claims-paying resources by selling equity was seriously compromised. As the figure shows, the market reaction was anticipatory of the credit rating downgrades.

In our view, there is a fundamental contradiction between the notion of a triple-A-quality bond insurer and reliance on the future equity sales as a material support of that credit quality. The potential for non-temporary declines in equity prices makes reliance on future equity sales an inherently speculative proposition.

Against the backdrop of the pre-crisis companies that remain mostly on the sidelines, the new players have not managed to break away and establish themselves as different from, and better than, their predecessors. Their continued reliance on the presumption that they can amass resources in the future means that they are doing business with too few existing resources to inspire confidence in their credit. The result is the diminished industry that exists today. Table 4 summarizes the current situation.

It is ironic that in an environment where investors value credit quality more highly than before the crisis (see Figure 3), the market has been

Company		Ratings (Mdy/S&P/Fitch)	Current Status
ACA		NR/NR/NR	In runoff
AMBAC		NR/NR/NR	In runoff
BAM		NR/AA/NR	Active ^a
BHAC		Aa1/AA+/NR	Inactive
Assured	AGC	A3/AA/NR	Inactive
	AGM	A2/AA/NR	Active ^b
	MAC	NR/AA/NR	Minimally active ^c
CIFG		NR/NR/NR	In runoff
FGIC		NR/NR/NR	In runoff
MBIA	MBIA Ins.	B2/B/NR	In runoff
	NPFG	A3/AA-/NR	Trying to become active
Radian		Ba1/B+/NR	In runoff
Syncora		NR/NR/NR	In runoff

Sources: Bond Buyer, Thomson Reuters, rating agencies.
 Note: Ratings as of 4/6/2015.
^a \$9.9 billion insured amount in 2014.
^b \$7.5 billion insured amount in 2014.
^c \$8.2 billion insured amount in 2014.

unable, so far, to deliver effective credit enhancement solutions. The old bond insurance business model is not delivering a solution. The weaknesses in the model have been fully exposed and the market fully realizes that the companies adhering to the old model are not truly strong credits.

CREATING A STRONGER BOND INSURER

There is an alternative business model for creating a transparent, creditworthy, and stable bond insurer that can achieve and maintain stronger credit quality than any bond insurer in the past. The business model has four elements. The first element is a higher level of claims-paying resources relative to the insured risks. The model approaches this from both sides. It envisions a higher absolute level of resources compared to the historical norms of the bond insurance industry. In addition, it envisions restricting the insured portfolio to only municipal bonds of the least risky types.

The second element of the new business model is using contingent capital securities as the vehicle for accumulating a higher level of claims-paying resources. Well-structured contingent capital securities can offer low risk to investors and a highly cost-effective source of claims-paying resources to a bond insurer.

The third element of the new business model is an operating rule that conditions the issuance of each new insurance policy on the prior accumulation of incremental resources sufficient to maintain an insurer's credit quality. This element calls for quantitatively testing the insurer's credit quality using computer simulation techniques based on rating agency methodologies. The testing would be done in connection with the issuance of each new insurance policy.

The fourth element of the new business model is maturity matching the cash flows from the claims-paying resources to the insured risks. More specifically, the claims-paying resources would consist of high-quality assets that produce cash flows in each period sufficient to cover a specified portion of all insured debt service scheduled to be paid during the period. Here, too, the computer simulation offers a basis for gauging the strength of the coverage to any chosen level of confidence.

Level of Claims-Paying Resources

The first element for creating a transparent, creditworthy, and stable bond insurer is to establish a higher level of *existing* claims-paying resources relative to the insured risks. A basic way to measure that relationship is with the ratio of claims-paying resources to the insured par amount—essentially a leverage ratio. Of course, such a ratio alone cannot provide a reliable indicator of credit strength. A given ratio might indicate ample coverage for a portfolio of strong underlying credits, but not-so-ample coverage for an insured portfolio of weaker quality. Table 5

Table 5: Idealized Relationship of Credit Grade to Leverage of Hypothetical Municipal Bond Insurer

Credit Grade (Rating)	Triple-A (Aaa/AAA)	Double-A (Aa/AA)	Single-A (A/A)	Triple-B (Baa/BBB)	Speculative Grade
Ratio of claims-paying resources to insured par amount (%)	3.5	2.5	1.5	0.5	< 0.5
Assumptions: Insured portfolio has strong diversification (1% concentration limit). All insured credits are in categories that have assumed mean recovery rates of 65% under Moody's municipal CDO methodology (Yerynovska et al., 2014), are in recovery groupings A or B under S&P's municipal CDO criteria (Radziul et al., 2012), and otherwise qualify as "high-quality municipal bonds" as described in the text. At least 90% of the insured credits have underlying ratings of "A3/A-" or better and the remaining insured credits all have underlying ratings of "Baa3/BBB-" or better.					

shows our view of the appropriate relationship between financial guarantor leverage and credit grades, assuming a financial guarantor with a well-diversified insured portfolio of "high-quality municipal bonds" (defined below) of which at least 90% have underlying ratings of "A3/A-" or better and the remainder of which have underlying ratings of "Baa3/BBB-" or better.

Quality of the Insured Risks

Focusing on only high-quality municipal bonds is important because those are the types of bonds for which there is the greatest volume of historical performance information. In fact, some studies cover the performance of the municipal sector for more than 100 years. For example, Hempel reports that even through the Great Depression, losses on municipal bonds were only 0.5% overall (Hempel, 1971, p. 32). Hempel discusses episodes in the 1800s when municipal bond performance was worse—particularly the Panic of 1837—but the track record since before the start of the twentieth century has been remarkably strong. The rating agencies themselves look to such studies as items of important guidance for understanding the credit risk of municipal issuers (Previdi et al., 2013; Tudela et al., 2013).

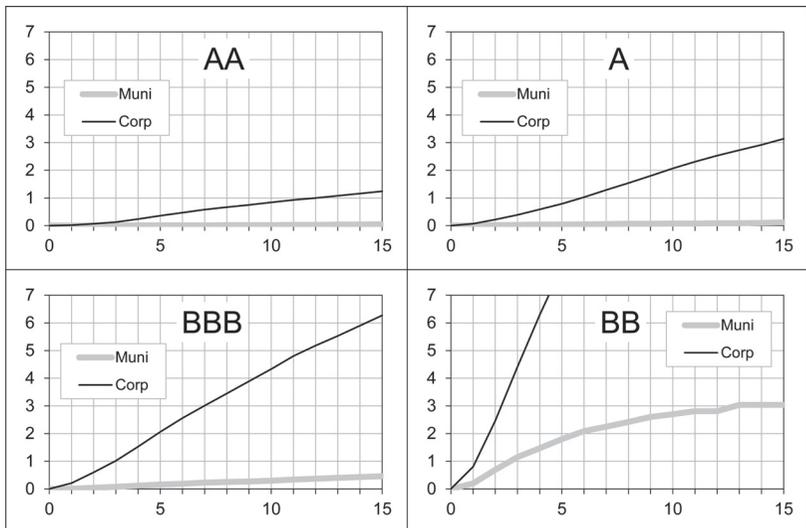
Moreover, the strong performance of municipal bonds as reported by the rating agencies further reflects their strong credit quality relative to corporates. As shown on Figures 8 and 9, municipal bonds have had much lower default rates than comparably rated corporate bonds. In fact, as shown on the figures, municipal bonds rated at the triple-B level have had lower default rates than corporate bonds rated at the double-A level.

The credit strength of municipal bonds compared to other asset classes is also reflected in higher recovery rates on the rare occasions when defaults do occur. Moody's reports that, for the 80 defaults of

Moody’s-rated municipal bonds from 1970 through 2013, average recoveries were roughly 64%, while the average recoveries on senior unsecured bonds of corporate issuers were just 48% (Tudela and Mediolì, 2014, p. 25). Thus, it is no coincidence that Moody’s methodology for rating municipal collateralized debt obligations (CDOs) backed by municipal bonds applies a 65% mean recovery assumption for the stronger portion of the municipal universe (Yerynovska et al., 2014, p. 12). S&P’s methodology for rating municipal CDOs applies even higher recovery assumptions of 85% and 75% to the stronger portion of the municipal universe (comprising recovery groupings A and B in S&P’s methodology) (Radziul et al., 2012).

In order to maximize the degree of certainty that the historical credit performance of municipal bonds provides a useful template for future expectations, the new business model restricts the types of bonds that can be insured to “high-quality municipal bonds,” which we define as follows: First, they must be from categories that have assumed mean recovery rates of 65% under Moody’s municipal CDO methodology (Yerynovska et al., 2014) or that are in recovery groupings A or B under S&P’s municipal CDO criteria (Radziul et al. 2012). Second, they must be of types that have

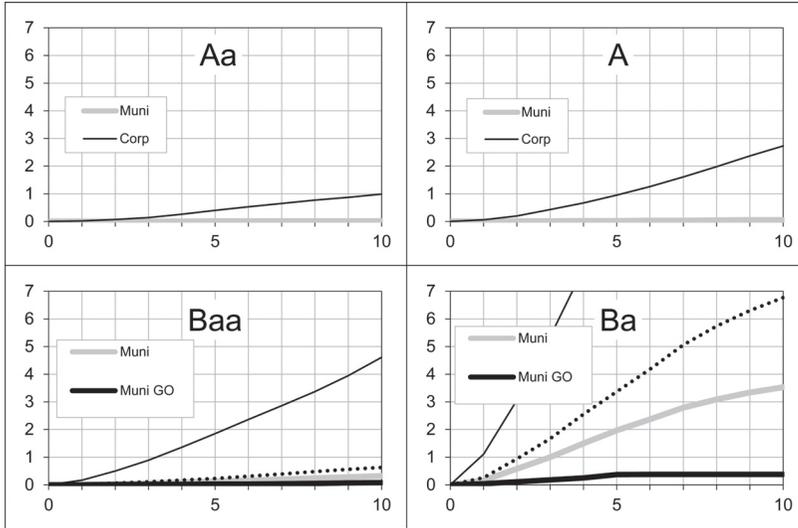
Figure 8: Municipal vs. Corporate—Average Cumulative Default Rates by S&P Generic Rating Category over Time Horizons of 1 to 15 Years (%)



Sources: Standard & Poor’s (Patek, Murphy, and Buswick, 2013; Vazza et al., 2014).

Note: S&P muni statistics cover the period 1986–2012. S&P corporate statistics cover the period 1981–2013.

Figure 9: Municipal vs. Corporate—Average Cumulative Default Rates by Moody’s Generic Rating Category over Time Horizons of 1 to 10 Years (%)



Sources: Moody’s Investors Service (Tudela and Medioli, 2014, pp. 22–24).

Note: Moody’s statistics cover the period 1970–2013 and partially reflect adjustment of historical municipal ratings in connection with recalibration of municipal ratings to Moody’s global scale in 2010.

historically demonstrated the lowest levels of default and highest levels of recovery. These types include the following:

- General obligation bonds;
- General fund and tax-supported bonds;
- Bonds for essential service utilities such as water, sewer, electric, and solid waste;
- Bonds for public power;
- Bonds backed by established and critical infrastructure such as airports, ports, toll roads, bridges, and mass transit; and
- Bonds for public universities.

In addition, the definition of “high-quality municipal bonds: excludes the following sectors and types of debt:

- Healthcare and hospitals;
- Private college and universities and charter schools;
- Investor-owned utilities;
- Tax assessment, tax increment, and certain special tax sectors;

- I.R.C. § 501(c)(3) not-for-profit entities;
- Military, affordable, or local agency single family housing bonds;
- Corporate bonds;
- Bonds with unmitigated appropriation risk; and
- Variable-rate and other debt that introduces put and liquidity risk.

Thus, our notion of the proper relationship between a hypothetical bond insurer's credit strength and the balance between its claims-paying resources and the risk of its insured portfolio (see Table 5) is supported by the combination of (1) restricting the insurer's insured portfolio to high-quality municipal bonds and (2) the remarkably strong track record of such bonds, particularly their low losses through the Great Depression. The 3.5% level that we associate with the triple-A credit grade leaves a substantial cushion for losses to exceed their Great Depression level and is substantially higher than the level that would be required by the major rating agencies today.

Contingent Capital Securities Provide a Key Source of Claims-Paying Resources

The second element of the new business model is using contingent capital securities as the vehicle for accumulating a higher level of claims-paying resources. Proceeds from the issuance of such securities would be held in the form of U.S. Treasury securities or other high-quality assets that produce regular cash flows. If not needed for paying claims on insurance policies, such cash flows would be paid out to the holders of the contingent capital securities. The holders would also receive an additional amount as compensation for the risk that such cash flows might be needed to cover claims. However, that risk would be very small because a significant portion of the insurer's capital and reserves would provide first-loss protection to the holders of the contingent capital securities.

Continual Accumulation of Claims-Paying Resources

The third element of the new business model is an operating rule that conditions the issuance of new insurance policies on the prior accumulation of resources sufficient to maintain credit quality. This element entails testing whether credit quality is being maintained in connection with each new insurance policy.

A condition to issuing each new insurance policy would be that the insurer already has the full amount of claims-paying resources needed to achieve true triple-A credit strength (after giving effect to the new policy). The test for compliance with that condition is the more stringent of the insurer's internal standards (see Table 5) and the rating agency quantitative

standards for triple-A ratings under their methodologies for rating municipal CDOs (Radziul et al., 2012; Yerynovska et al., 2014).

The testing mechanism would use Monte Carlo simulation covering both the bond insurer's portfolio of insured bonds and its claims-paying resources, including its capital and reserves, as well as the assets underlying the contingent capital securities. The modeling would simulate (1) defaults of issuers of insured bonds, (2) defaults of assets in which the bond insurer's capital and reserves are invested, and (3) defaults of assets underlying the contingent capital securities.

Maturity Matching of Claims-Paying Resources to Insured Risks

The fourth element of the new business model is maturity matching of claims-paying resources to insured risks. The purpose is to neutralize market value risk by minimizing the likelihood that it would ever be necessary to sell claims-paying resources in order to satisfy claims. Instead, the underlying assets of the contingent capital securities would be selected so that the aggregate scheduled cash flows from the bond insurer's investment holdings and the underlying assets of its contingent capital securities would be able to cover simulated defaults by issuers of insured bonds to the required level of certainty. The required degree of matching would be the one needed to pass the Monte Carlo simulation test.

The use of the Monte Carlo simulation-based credit-quality test described above would not place any reliance on the insurer's ability to accumulate additional claims-paying resources in the future. It would not give the company "credit" for factors like profitability, market share, management, or strategy. Because of the requirement to test credit quality *before* the issuance of each new policy, the company's credit quality would be *fully* reflected in the ability of its existing resources to cover the risk on its existing insurance policies.

From a credit perspective, a bond insurer operating under the new business model would closely resemble a CLO. As in a CLO, the bond insurer's credit quality would be a function of the following well-defined factors:

- The balance between existing claims-paying resources and the risk of the existing insurance policies;
- The requirement that policies cannot be issued without first adding resources to maintain that balance, according to objective, quantitative criteria; and
- Cash flow matching to minimize or eliminate exposure to the risk of market value fluctuations, also according to objective, quantitative criteria.

The best way to view the credit quality of such a bond insurer would be solely in terms of the factors above and not at all in terms of its ability to raise future resources to cover risks already in its portfolio. Not surprisingly, that mirrors the approaches for analyzing the credit quality of CLOs.

A.M. Best, a rating agency that focuses primarily on the insurance industry, has already embraced a methodology for rating bond insurers that places minimal emphasis on a bond insurer's ability to raise future resources to cover existing risks (Modu, 2013). The methodology employs the key elements of CLO analysis. It uses Monte Carlo simulation and places the greatest analytic weight on the balance between a company's existing claims-paying resources and the risk in its insured portfolio.

CONCLUSION

The idea that an insurer should expect to accumulate necessary resources after the onset of stress is inherently flawed. The cost of accumulating resources skyrockets after the arrival of stressful conditions. Moreover, only a limited portion of an insurer's resources can be used before market access evaporates. It makes infinitely more sense to accumulate the resources beforehand, when doing so is easy and cost-effective.

Revival of the bond insurance industry requires a new business model—one based on having sufficient existing resources to cover existing risks. We expect that the industry's prospects will be significantly hampered until there is a change. Based on today's pricing of newly issued insured bonds, the market views the active bond insurers as too weak to add value for most of the municipal bond universe (Figure 3). Because of those pricing levels, municipal issuers at or above the single-A credit level currently do not have the option of using bond insurance. The power of market forces—as already reflected in bond pricing—will ultimately cause a new and better business model to emerge.

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