

Bond Insurers

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Bond insurance was a small but sophisticated sector of the broader insurance industry. Conceived and created in the 1970s, bond insurance penetrated more than half of the entire US municipal bond market in the 1990s. This article explains bond insurance, its rise to prominence, and its sudden and shocking collapse. A diversifying foray of the bond insurers into structured finance risk in the years prior to 2007 is a dominant cause of these firms' failures. Yet the larger story is the manner in which business imperatives, rating agencies, and regulators enabled and encouraged all bond insurers to pursue the same catastrophic strategy. The uniformity of strategy and capital and risk assessment created the "systemic risk" of high correlation among bond insurers.

■ The bond insurance business began life in 1971 with the founding of Ambac.¹ By its peak in 2007, there existed ten significant bond insurers with seven of these firms holding triple-A financial strength ratings.² The Credit Crisis that

¹ MGIC Investment Corp. created Ambac as a subsidiary with the acronym originally denoting "American Municipal Bond Assurance Corporation." See: <http://www.fundinguniverse.com/company-histories/Ambac-Financial-Group-Inc-Company-History.html>.

² See S&P (2007a). Page 4 shows a useful summary of history of the ten bond insurers and also lists the contemporaneous S&P ratings. In addition to Ambac, these firms were ACA Financial Guaranty, Assured Guaranty, CIFG Financial Guaranty, Financial Guaranty Insurance (FGIC), Financial Security Assurance (FSA), MBIA Insurance, PMI Guaranty, Radian Asset Assurance, and XL Capital Assurance.

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began in 2007 decimated this sector. Depending on how one defines "survival," only one firm – Assured Guaranty – still stands (S&P, 2010a). The rise and fall of bond insurance is a story of innovation, regulation, and correlation. In this respect, our story shares some common elements with the trajectory of the banking industry. I find that regulation fosters correlation.

I. Bond Insurance Mechanics

Let's begin with some terminology. Another name for "bond insurance" is "financial guaranty insurance." The terms "insured bond" and "wrapped bond" are synonymous. Bond insurance firms are also known as "monolines" or "monoline insurance companies" to distinguish them from "multi-line" insurance companies. A multi-line insurer is generally the more typical insurance company that offers life or property and casualty (P&C) insurance. One of the rating agencies' and regulators' key tenets over the years was that only monoline insurers could be trusted to issue financial guaranty insurance.³

The purpose of bond insurance is to insure the bond investor against the failure of the bond obligor to make

³ As the industry grew, participants expected the financial guaranty insurer to pay claims without asserting any defense (such as fraud or misrepresentation). Over time, this expectation became a requirement. Based on sporadic events, rating agencies were wary of multi-line insurers' stated sincerity in waiving defenses. The moral hazard of life and P&C insurance is absent, or at least much subdued, in bond insurance. Article 69 of the New York State Insurance Law (NYSID, Article 69) also limited multi-line insurer participation in financial guaranty insurance.

required principal and interest payments.⁴ Imagine an investor purchases an insured bond with the city of Scranton (Pennsylvania) as the obligor. If Scranton cannot make a payment of interest and/or principal, the bond insurer will step in and pay precisely what is due. The investor may not even perceive “a problem” since the insurer will make all payments up to and including bond maturity, if necessary.⁵ The insurer has the right to seek restitution from the obligor, but the investor is not a party to this action.

There is a cost to the bond insurance. Convention for municipal bond policies is that the obligor pays the premium upfront at time of issuance.⁶ If I take the bond issue amount of the Scranton example above to be \$20 million and the maturity to be 30 years, then a typical bond insurance premium might be \$0.6 million. The obligor would pay this premium from the bond proceeds. While this hypothetical premium happens to be 3% of the bond par amount, bond insurance premiums are typically not quoted as a fraction of par as one would intuitively expect. Rather, the industry defines premium rate in this case as the ratio of upfront amount to the sum of total future principal and interest payments. Given that most municipal bonds have 30-year maturity with an amortizing principal schedule and varying coupons, converting between premium rate and (upfront) premium amount requires a calculation from the bond-specific debt service schedule. As a “good guess,” the total interest and principal payments over the 30 years are comparable so that a \$20 million par bond will have total debt service of (very) roughly \$40 million.

The purpose of bond insurance is to insure the bond investor against the failure of the bond obligor to make required principal and interest payments.

Hence, our numerical example of a \$20 million par bond issuance with \$0.6 million bond insurance premium would be quoted by the insurer as “1.5% of debt service.”⁷

There did exist a relatively small number of municipal bond insurance policies in which the insurer received premium payments on each coupon payment date rather than upfront. In this form, bond insurance resembles in its economic form a credit default swap (CDS) referencing the obligor: the insurer receives an ongoing premium to bear the obligor default risk in unfunded form. Even with the upfront premium, bond insurance and CDS are similar in the risk to the insurer. A key difference between the two is that bond insurance always has the underlying risk to insure while a buyer of protection in CDS need not have an insurable interest.

The upfront aspect of the premium payment certainly works to the advantage of the insurer. Though municipal bonds are typically long-dated, they also generally have obligor call options beginning well before maturity. When borrowers exercise the call options with insured debt, the bond insurer retains all the upfront premium. With these early calls, the insurer is able to recognize the unearned premium as immediate income.⁸ For this reason, bond insurers benefit greatly from a falling interest rate environment (that may prompt a rash of municipal bond refinancings).

The bond insurance world focused exclusively on municipal risk until the mid-1990s for reasons that a later section discusses. Within the municipal sphere, the tax deductibility (“tax exemption”) that investors enjoy to varying degrees is critically important. Though there do exist taxable municipal bonds, the preponderance of bonds are tax-exempt. An important feature of bond insurance is that it does not “destroy” the tax exemption. Even though a portion of bond proceeds may go directly to an incorporated, for-profit bond insurer, the bond issue that satisfies other requirements for tax exemption retains this status.

⁴ I use the word “obligor” rather than “issuer” since the municipal bond world has the confusing element that the bond issuer is often not the entity that must make debt service (principal and interest) payments. The issuer is often a city or other municipal entity that simply facilitates the debt transaction for the actual borrower (a revenue project or non-profit entity, for example). Thus, it is prudent to say “obligor” or “borrower” rather than “issuer.”

⁵ In this circumstance, the bond insurer generally has the right to accelerate the bonds to repay the investor’s entire principal prior to stated maturity. Typically, the insurer prefers to make the scheduled payments rather than accelerate the bond. In fact, a critical aspect of bond insurance is that the insurer is rarely required to make large, unscheduled payments. A common refrain is that bond insurers, unlike banks, “have no liquidity risk” since they do not depend on short-term debt. Like typical insurers, bond insurers maintain large investment portfolios for the purpose of paying claims as they arise.

⁶ Virtually all bond insurance was provided at the time of bond issuance. There existed much smaller “secondary activity” in which an investor could contact a bond insurer to provide insurance on just his/her position of a specific uninsured bond. In such cases, the investor would pay the insurance premium.

⁷ This premium (1.5% of debt service) is high relative to most municipal bond issuers and is “contrived” in the sense that I am not referencing market data for the period prior to 2008 at the peak of the bond insurance market. In the period from 2006 to 2010, the S&P credit rating of Scranton general obligation debt was below investment-grade which is consistent with a relatively high bond insurance premium.

⁸ When a bond insurer receives \$1 million, for example, in an upfront premium, it does not recognize this revenue immediately. After subtracting underwriting expenses, the premium is credited to the unearned premium reserve (UPR). UPR is a liability that steps down every year until maturity/call thus providing small but steady annual income. An early call collapses the remaining UPR to zero.

II. Rationale for Bond Insurance

Successful business models provide net benefits to all participants. Let's examine the alleged benefits and costs to the obligor, bond investor, and bond insurer. The obligor pays the insurance premium but its net cost of funding is lower with bond insurance. To continue the Scranton insured bond example, imagine that investors would require a 3.0% coupon for a par bond without insurance at a hypothetical single-A credit rating. With insurance that raises the credit rating to triple-A, investors would accept a lower coupon of 2.5%.⁹ The obligor saves 50 basis points (0.5%) per annum but also pays the \$0.6 million upfront premium which is equivalent to 30 basis points per annum.¹⁰ Hence, the net savings to the obligor is 20 basis points per annum. One of the sayings in the bond insurance world is that the borrower and insurer "split the savings" in this manner just described.

For the investor, the benefit is simply that the credit rating of the bond is enhanced. The default risk of the bond is lower but so is the investor's compensation. This is not so much a benefit as an artifact of bond insurance. Investors who wish to earn tax-exempt income that is "safe" rather than tax-exempt income with a measure of credit risk are the natural buyers of wrapped bonds. Professional investors, such as tax-exempt bond funds, often prefer uninsured bonds in order to earn the higher yield and rely on their own credit underwriting.

One might believe that the benefit to the insurer is the most readily apparent. Numerous obligors pay the insurer to take credit risk, but the compensation must be adequate for the risk. On its face, the example above with the insured Scranton bond implies that the insurer is underpaid. If the market sees a 50 basis point difference in spread between insured and uninsured bonds, then the fair price for the risk is 50 basis points. Yet the insurer receives only 30 basis

⁹ Credit ratings from the major rating agencies come in numerous forms and have nuanced definitions. When I say a bond insurer is triple-A, that is a "financial strength" rating rather than a bond rating. When the insurer wraps a bond that would otherwise have a lower "underlying" rating such as single-A in the current example, then this wrapped bond acquires the bond rating of triple-A.

¹⁰ To convert the upfront premium to an annual annuity equivalent, note that \$0.6 million is 3% of the bond par amount of \$20 million. For a typical amortization schedule and interest rate environment, I stipulate for this example that the duration of the 30-year bond is 10 years. The 3% upfront amount divided by 10 years duration is 30 basis points per annum.

points. How can this be a sustainable business?

The bond insurers have several answers. The most direct response is that the municipal bond market is not efficient. Due to specific tax-exemption features and the small issue size of many bonds, there are relatively few investors willing to analyze the fundamental risk of specific obligors such as Scranton. Hence, without insurance, the argument goes that such bonds attract lower bids than they would in an efficient market. Stated numerically for our example, the fair yield of unwrapped Scranton might be 2.7% rather than 3.0% if one accounts for market inefficiency. If so, the bond insurer is well paid if it receives the equivalent of 30 basis points per annum. It is notoriously easy for a business person to claim that a market is not efficient in arguing for the trades he/she wishes to execute. I know of no study that supports this inefficiency hypothesis for bond insurance pricing, but neither do I know of a contrary study.

A second argument for the sustainability of the municipal bond insurer business model is the historically low default rates of municipal entities. A Moody's Investors Service study for the period 1970-2000 found that only 0.06% of Baa-rated municipal bonds default over a 10-year period.¹¹ This Baa rating is the lowest investment-grade rating category. Higher categories had lower default rates. All bond insurers other than ACA Financial Guaranty avoided wrapping bonds with underlying ratings below investment-grade. Relative to this exceedingly low default rate, the low per-annum insurance premium rate appears healthy.¹²

A problem for a business model that insures ultra-low probability events for low premiums is that high leverage is necessary for attractive returns on equity. Leverage in the case of bond insurers does not signify external borrowing relative to equity. Rather, leverage here pertains to the insured book of business relative to the amount of equity and other liabilities subordinate to policy claims. Bond insurers deployed huge leverage as the ratio of insured par amount to

¹¹ See Exhibit 4 of Moody's, 2002.

¹² The average premium that triple-A bond insurers earned for policies on US municipal risk varied over time. For 2007, see S&P (2007a). Though not listed conveniently, I infer that 40-50 basis points of debt service is a reasonable estimate range for this average premium. In rough numbers, the per-annum equivalent is 8-10 basis points. Clearly this is a minuscule premium, but it compares well to the (Moody's Baa) municipal default rate of 6 basis points (0.06%) over 10 years.

statutory capital sometimes exceeded 100:1.¹³

III. Rating Agencies and Regulators

The bond insurers endured heavy regulation. This statement counts the oversight of both the insurance regulator of the insurer's state of incorporation and the dominant rating agencies. While most bond insurers conducted operations from the state of New York, the states of incorporation varied which implied a diversity of primary state regulators.¹⁴ The New York State Insurance Department (NYSID) regulated directly the majority of bond insurers. Even for those bond insurers not incorporated in New York, the NYSID influence was considerable since home state regulators coordinated reviews with the NYSID.

The relevant legislation of the NYSID for bond insurers is NYSID Article 69. Section 6902(1) stipulates that financial guarantors cannot write other, non-financial forms of insurance (the “monoline versus multi-line” issue). Section 6904 of NYSID Article 69 places limits on leverage, single-obligor concentration, and non-investment-grade risk. One leverage constraint, for example, is that the insurer must have a ratio of insured municipal debt service obligation to capital of 300:1 or less. That's an exceedingly high permitted leverage.¹⁵ In practice, the state regulators considered the rating agencies to be the “night watchmen” guarding bond insurer credit strength. Rating agency reviews and requirements were more stringent than those of the regulators.

With the backing of the state regulators, rating agencies were the great enablers and referees of the bond insurance industry. The rating of each bond insurer was “the product” it sold to municipal bond obligors. Hence, as one would expect, the insurers devoted much time and energy to their rating agency relationships. Downgrade of a triple-A bond

insurer to double-A would be catastrophic.¹⁶ In addition to the publicly evident “product deficiency” relative to competitors in what had become a commodity market, the lower credit rating would directly reduce premiums for new business this insurer might still win.¹⁷ Even without a downgrade, a statement by a rating agency – called a “negative outlook” – that identified potential weakness in a specific bond insurer would create a five-alarm fire for the insurer. The appearance of unquestioned financial strength that only the rating agencies could bestow was a business necessity.

On its face, why would any bond insurer have triple-A ratings with risk exposure to capital leverage that can reach and exceed 100:1 (Pimbley, 1999)? The agencies considered municipal default risk to be sufficiently low to justify the leverage. Earlier I cited the Moody's Investors

Service study showing less than 0.1% default probability for investment-grade municipal bonds over a ten-year period. An alternative and popular study in the municipal world is that of George Hempel which provides municipal default experience through the Great Depression and in even earlier distressed periods (Hempel, 1971).

The capital adequacy portion of the Standard & Poor's (S&P) rating methodology for bond insurers invoked a “depression scenario” likely inspired by this (Hempel, 1971) review of depression periods (S&P, 2007b). S&P assigned a “capital charge” to each insured bond that represented an expected depression era default loss to the underlying borrower. The S&P model then projected forward balance sheet and income statement information for a seven-year period that imposed “depression losses”. To earn a triple-A rating, a bond insurer's projected balance sheet needed to show solvency at the end of the seven years

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¹³ See Table 5 of S&P (2007a).

¹⁴ The state insurance regulator of Wisconsin supervises Ambac while the Maryland Insurance Administration supervises Assured Guaranty and ACA Financial Guaranty.

¹⁵ The rough conversion of debt service to par amount translates the 300:1 ratio to 150:1.

¹⁶ Seven of the ten major bond insurers of 2007 had triple-A ratings. These seven firms dominated the market. Radian and PMI had double-A ratings and ACA had a single-A rating. The three sub-triple-A firms had chosen to accept lower ratings in return for lower capital requirements and the ability to market their insurance to municipal obligors of higher risk.

¹⁷ To elaborate, let's re-visit the example of providing insurance to a Scranton bond issue. With triple-A bond insurance, I imagine the wrapped bond would sell at par with a coupon of 2.5%. For an insurer downgraded to double-A, the wrapped coupon might be 2.7% instead. Thus, the obligor saves only 30 basis points per annum rather than 50 basis points and will, therefore, only choose the double-A bond insurance if the premium it pays to the insurer is commensurately lower.

with a prescribed “margin of safety.” Each capital charge assignment depended on both the type of municipal bond and the S&P rating of this underlying bond (*i.e.*, the rating the bond would have without insurance).

Certainly one can criticize this model for various reasons, but it largely performed as desired for municipal risk.¹⁸ Throughout the entire history of the bond insurance industry, municipal default losses have not unduly threatened the insurers.¹⁹ Such municipal losses may well increase in 2012 and subsequent years. Without question, non-municipal risks are responsible for having driven the insurers to the point of extinction.

IV. Downfall of the Bond Insurers

At its inception and into the 1990s, the dominant focus and purpose of bond insurers was to insure essential public-service municipal debt. The definition of what constituted “essential” municipal debt expanded beyond simple general obligations and public-purpose revenue projects of cities, towns, counties, and states. Not-for-profit entities such as hospitals, colleges, museums, recreation facilities, toll roads, airports, nursing homes, and even Native American gaming casinos found their way into the designation of “municipal risk.” Some of these facilities were clearly more “essential” than others. Bond insurer underwriting standards coupled with the rating agencies’ capital requirements for these evolving municipal risk categories were largely successful. While there were losses in these segments, almost always within the “less essential” portions of the overall municipal sector, such losses were contained. However, the loosening of the “essentiality” criterion by both monolines and rating agencies had an

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overall weakening effect on underwriting discipline in the industry and, as discussed below, had a much more significant negative impact when the industry moved into the structured finance sector.

The existential problem for the insurers was the low return on equity of municipal bond insurance. With the universal view that risk of municipal default was remote – which meant that municipal default insurance shouldn’t cost much – and the direct competition of numerous triple-A bond insurers, insurance premiums plummeted. I estimated in an earlier section that the weighted average premium for municipal financial guaranty policies of the triple-A insurers in the 2006 timeframe was roughly 10 basis points per annum. At this level, leverage of 100:1 is necessary to get the equity return up to 10% per annum and I haven’t yet subtracted expenses and taxes. To avoid single-digit return on equity (ROE), the bond insurers needed new products.

Attempted new-product innovations included municipal swaps, guaranteed investment contracts (GICs), municipal surety bonds, asset management, and government services. The bond insurers also launched initiatives in non-US markets and provided some guarantees for financial institutions. Some of these ideas met with limited success,

but the low ROE problem remained unsolved. The industry never moved to the insurance of corporate bonds due to strong discouragement from the rating agencies (likely due to the lack of essentiality I described earlier).

The emergence of the structured finance (SF) market in the 1990s provided the apparent solution. As the fundamental SF product, the asset-backed security (ABS) was a debt investment for which the collateral providing repayment is a large collection of relatively small loan obligations.²⁰ The monoline insurers won approval from rating agencies and regulators to wrap investment-grade ABS. The capital charges for the ABS with underlying rating below triple-A were generally higher than those for municipal risk, but

¹⁸ Reasonable criticisms are that some of the capital charges were subjective and unsupported by any data, there was no mechanism to incorporate diversification, and the model did not produce a probability of bond insurer default. Hence, designations of triple-A and double-A capital adequacy were arbitrary both conceptually and practically. In early 2007, Fitch Ratings introduced an alternative model (“Matrix”) to assist in ratings of bond insurers that improved upon the capital charge approach. See, for example, Fitch, 2007. A market rumor is that the new Fitch Ratings model cast the capital adequacy of insurers in a negative light which led several insurers – such as Radian – to drop the Fitch rating.

¹⁹ Admittedly, this “entire history of the bond insurance industry” is less than 35 years. Thus, I can’t conclude that this short history proved the validity of the rating agencies’ capital adequacy models for municipal risk.

²⁰ These “small loan obligations” might be credit card receivables for a million credit card holders (“credit card ABS”). Or the loan obligations might be 5,000 residential mortgage loans (“residential mortgage-backed security” or RMBS). A typical ABS transaction might consist of \$500 million of debt sold to investors. The ABS structure would then purchase and hold somewhat more than \$500 million of the small loan obligations. The ABS debt was deliberately divided (“structured”) into classes (or “tranches”) of varying seniority. The most senior debt class had low default risk relative to other classes while the most junior class had the highest default risk.

premiums for insuring these ABS positions more than compensated for the increased risk assessment.²¹ By the end of 2002, the ABS portion of the insurers' book had grown to a large fraction of the total.²²

The structured finance market grew more exotic over time. Though the "original" ABS types of credit card, auto loan, residential/commercial mortgage, *et cetera*, persisted, the collateralized debt obligation (CDO) emerged as a new vehicle to embed ABS risk (SF CDO) or corporate risk (corporate CDO and CLO – for collateralized loan obligation). Further, all such CDOs developed "synthetic forms" to complement the conventional cash forms. Synthetic CDOs employed credit default swaps in various ways to create a wider array of risk taking opportunities for the bond insurers than would otherwise have been possible. For purposes of satisfying insurance regulatory criteria, the bond insurers classified all activity of this type as "ABS."

Most of the CDO risk that the bond insurers assumed was at the triple-A level. That is, the insurers wrapped triple-A bonds or sold CDS protection on triple-A portions of CDO structures.²³ By late 2006 it had become clear that subprime (residential) mortgage exposure in these CDOs and in the direct RMBS policies issued by the monolines was both consequential and threatening. An S&P study of early 2007 citing end-of-2006 exposures provided significant data.²⁴ To quote extensively from these data, Ambac and MBIA had total subprime-related net par exposure of roughly \$30 billion and \$22 billion, respectively, at this time. Yet each firm held roughly only \$6.5 billion of capital.²⁵ FGIC's

²¹ See Chart 2 of S&P (2007b).

²² With MBIA as an example, this firm's total net par at the end of 2002 was near \$500 billion with \$170 billion attributable to ABS (S&P, 2006). This 34% fraction remained flat over the following four years.

²³ The bond insurers could not directly participate in CDS transactions. It became common to create "transformer structures" in which a special-purpose vehicle (SPV) would sell protection in a CDS and purchase an FG policy from the bond insurer with premium equal to the CDS payments.

²⁴ See Tables 1A, 1B, and 2 of S&P (2007c). While the article title of "Subprime Exposure is Unlikely to Cause Bond Insurers Major Difficulties" is unfortunate in light of subsequent events, the article did capture a contemporaneous widely held view that the residential mortgage market was stressed but not at the abyss.

ratio of exposure to capital was broadly similar to that of Ambac (\$13.5 billion net par with \$2.4 billion capital) while the ratios for CIFG and XL Capital were higher (*i.e.*, more risky).

This subprime mortgage exposure, more than half in the form of triple-A CDO tranches, brought down the monoline insurance industry.²⁶ Both Assured Guaranty and FSA stand out among the erstwhile triple-A insurers as having relatively little subprime CDO exposure at the end of 2006. Hence, CDO losses did not cripple these two firms. Assured and FSA merged in 2009 and still maintain an investment-grade rating, but the pace of new business remains depressed despite the absence of any competition.

What is most shocking about the bond insurance experience in the Credit Crisis is the correlation. Virtually all major firms plunged to insolvency. Had just one such insurer fallen by the wayside with another suffering a (less ignominious) rating downgrade, the industry impact would have been minimal. Private companies succeed and fail with regularity – that's the normal course.

IV. Post-Mortem and Conclusion

Seeking lessons from disasters of this type is necessary, challenging, and prone to error. The obvious and understandable reaction of "I wish I hadn't made those loans" is not helpful.²⁷ Yet that is the sentiment to which one's thoughts always return. Neither is it insightful to curtly blame the rating agencies or the regulators or the insurance executives or the residential mortgage borrowers or the structured finance investment bankers or the Federal Reserve Board or Bretton Woods II. All these elements played contributing roles, but the creation of a long story that weaves these pieces together would be incomplete and unsatisfying.

²⁵ The capital value I quote is "qualified statutory capital." Arguably, one might wish to compare the net par exposure amounts to "total claims-paying resources" which, in both cases, is close to \$13 billion. I consider comparison to the lower statutory capital to give a better sense of the likelihood of bond insurer survival while comparison to total resources is more relevant to the ability to pay claims (possibly from the estate of the deceased insurer).

²⁶ The insurers had other CDO risk not quoted in the numbers above since the underlying loans of this other CDO risk were not subprime mortgages. There was a great deal of mark-to-market volatility in corporate and other CDO exposure which had second-order, though significant, consequences for market confidence in bond insurers.

²⁷ As the reader understands, the bond insurers did not make loans. The bond insurers' risk from the financial guaranty policies was equivalent to lending to the bond obligors, so I express remorse in this timeless manner that connects us to the years and centuries of lending that preceded bond insurance.

Still, at a simple level, the combination of triple-A SF CDO positions suffering losses with the monoline's exposures to such positions well in excess of their capital brought down most firms. Thus, one is tempted to blame the SF CDO ratings. These CDO ratings were, in fact, "wrong" in the sense that losses were so far beyond the stated quantitative descriptions for triple-A ratings (see, for example, Moody's, 2008, or Fitch, 2006, or S&P, 2010b). A critical error that infected the SF CDO rating methodology was the assignment of low correlation to the underlying RMBS bonds.

At this point I desist from further tracing of rating errors (down to the RMBS, for example) since I realize we're answering the wrong question. What is most shocking about the bond insurance experience in the Credit Crisis is the correlation. Virtually all major firms plunged to insolvency. Had just one such insurer fallen by the wayside with another suffering a (less ignominious) rating downgrade, the industry impact would have been minimal. Private companies succeed and fail with regularity – that's the normal course.

Really, then, the critical question is why the industry saw the near-simultaneous failures of so many firms. Credit ratings do not speak to this simultaneity, so I can't just look to a failure of the triple-A rating applied to one particular firm. Ironically, it is the regulation itself that produces the correlation. By regulation, I mean both the state regulators' insistence that only a special type of firm – the monoline – be permitted to issue financial guaranty policies (thereby constraining the ability of a guarantor to diversify its business) and the rating agencies' application of common risk limits and capital rules for all bond insurers (thus promoting similar choices of risk type and leverage among the insurers).²⁸

Note that these two safeguards of prohibiting multi-line insurers from insuring bonds and enforcing risk and leverage limits are not objectionable on their face. These restrictions may be optimal – or at least effective – for minimizing the insolvency risk of an individual insurer. Yet these measures give rise to the high correlation among the regulated entities that the market observed beginning in 2007. For example, most insurers found the 0.1% of par amount capital charge that S&P assigned to triple-A CDO tranches to be a compelling factor in choosing to pursue this asset class (S&P, 2007b).

Outside bond insurance, corporate entities generally do not have the same high default correlation because regulation is lower and there is not a business necessity to maintain a high debt rating. Though a company in, for example, the pharmaceutical industry would benefit from higher credit ratings to lower its debt cost, it need not accord high priority to its ratings if it finds other advantages in structuring its business in a manner that depresses the ratings.

The financial industry, on the other hand, is clearly an example of an industry with high regulation and high dependence on maintaining certain target debt ratings. Yet the Credit Crisis has proven the high correlation that exists among financial institutions both within the same country and worldwide. A valuable lesson, I infer, is that regulation fosters correlation. Banks and insurance companies that are regulated and constrained similarly will fail at similar times and for similar reasons.■

²⁸ I do not intend that this statement should exonerate the executives of the bond insurers. Individual firms need not operate at the boundaries of the externally imposed risk limits. Ideally, such firms would govern themselves with their own risk measures and criteria. Still, operating "at the boundaries" may be an optimal strategy for shareholders since the regulations and rating agencies effectively certify the safety of the insured liabilities.

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