The Securitization of Surplus Notes by Property and Casualty Insurers: Empirical Evidence

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Abstract

Surplus notes have been utilized by insurers for decades, although large insurers dominated in this market long ago. Lately popular securitization deals revive surplus notes as an efficient financing device for small and mid-sized insurers to tap capital markets at a reasonable cost. This paper intends to fill in the gap never touched by the prior studies by investigating what factors determine the insurers’ decisions to securitize their surplus notes and what are the underlying rationales of surplus notes securitization. After implementing several models on censoring data, our results show that insurers’ size, organization form, and risk-based capital position significantly affect the participation decision made by insurers to securitize surplus notes, while the size and organization form impact the volume decision in a different way from they do the participation decision. In addition, the rating agency’s ratings significantly affect both participation and volume decisions. Overall, our results suggest that deductions of financial distress costs and agency costs are important incentives for insurers to securitize their assets/liabilities.

Keywords: surplus notes, hybrid capital, insurance company, securitization

JEL Classification: G22, G32
1. Introduction

One important trend occurred recently in insurance industry is the convergence of insurance markets and financial markets by securitization. Several studies (Doherty, 1997; Doherty and Schlesinger, 2002; Cummins, Lalonde, and Philips, 2004; Cowley and Cummins, 2005; Iacobucci and Winter, 2005) have intended to analyze the economics of innovations regarding catastrophic risk (CAT) securitization, assets-backed securitization (ABS), and XXX reserve securitization by life insurers.

Since the year of 2002, securitization of surplus notes has sparked resurgence in the issuance of these hybrid notes by insurers. As unsecured indenture deeply subordinated to policyholder claims and other indebtedness, surplus notes have been widely used by insurers for several decades. However, based on a study by A.M. Best in 2003 (A.M. Best, 2003), issuers of surplus notes with large face amount and long maturity in 1990’s were usually biggest insurers that had more access to capital markets, while small or mid-size insurers could only issue surplus notes in relatively small denomination and short maturity. At the same time, surplus notes are not regarded as an effective financing device to raise capital for small or mid-sized insurers, who traditionally lack channels to capital markets. With the inception of the first insurance collateralized debt obligation (CDO), the securitized interest in the pool of collaterals such as bonds and loans in 2002, the securitization of surplus notes receives warm welcome in small and mid-sized insurers as they obtain a sesame door to capital markets at reasonable costs. According to Fitch Ratings’ survey (Fitch Ratings, 2005), thirteen insurance CDO offerings with $3.76 billion assets had been completed from December
2002 to December 2004, of which surplus notes and trust preferred securities account for 30% and 70%, respectively.

Dumm and Hoyt (1999) provide the first empirical study about surplus notes issuance by life insurers during 1992 to 1995, but this unique hybrid security receives little attention in the academia under the background of securitization. Therefore, the reasons for insurers’ renewed interest in issuing surplus notes are unclear based upon both scholarly research and industry reports. Under the assumptions of perfectly efficient capital markets, securitization of surplus notes would not add insurers’ value and therefore insurers should have no incentives to securitize. Nevertheless, if any assumption underlying perfect markets is violated in the reality, insurers are willing to securitize driven by friction reduction and utility maximization. Several hypotheses have been proposed by researchers (Doherty, 1997; Doherty and Schlesinger, 2002; Cummins, Lalonde, and Philips, 2004; Cowley and Cummins, 2005; Iacobucci and Winter, 2005) about incentives of securitization by insurers and other financial institutes. They argue that in the presence of bankruptcy costs, information asymmetry, agency costs, and regulation costs, securitization may help insurers mitigate these costs and add some value to firms. Empirical studies on hybrid securities in the banking industry deliver supports to these hypotheses to some extents, and they find that banks use securitization generally to mitigate tax burdens (Engel, Erickson, and Maydew, 1999), financial distress costs (Benston, Irvine, Rosenfeld and Sinkey, 2003; Harvey, Collins, and Wansley, 2003; Sironi, 2003), and regulatory scrutiny (LaCour-Little, and Sander, 2004).

The increasing popularity of surplus notes securitization over last four years prompt us to explore the logic behind the phenomenon and examine the above
hypotheses for the insurer universe. Hence, the significant relation between surplus notes securitization and firm characteristics related to financial distress costs, information asymmetry, agency costs, and regulatory costs, will illustrate how the surplus notes securitization is motivated. However, little work has been done on how surplus notes securitization is driven by firm characteristics, especially for property-casualty (P-C) insurers, although P-C insurers issued 75% total assets of insurance CDOs from December 2002 to June 2004 (Fitch Ratings, 2005). Therefore, P-C insurers provide a good arena to study factors driving securitization of surplus notes.

In this paper, we examine the characteristics of insurers that lead to activity in the issuance of securitized surplus notes issues. The purpose of this study is to investigate what factors determine insurers’ decision to participate in securitization of surplus notes, and furthermore, how these factors affect issuers’ decision - how much surplus notes they should issue in the pool. Following Cummins, Philips, and Smith’s (2001) study on derivative usage by insurers, we distinguish the participation and volume decision in the securitization of surplus notes issuance. Moreover, our study will shed some lights on the economic rationale of surplus notes securitization by insurers. Using a sample of 1686 P-C insurers consisting of 45 surplus notes issuers and 1641 non-issuers in insurance CDO deals during year 2003, we empirically test the effects of firm characteristics, including size, financial strength rating, organization form, leverage, and risk-based capitalization, on the insurers’ decisions to engage in surplus notes securitization.

Our results indicate that insurers with larger size, weaker risk-based capital position, and mutual insurers are more likely to issue surplus notes. On the other hand, we find that smaller insurers, stock insurers, group affiliated insurers, and insure
marginal A.M. Best’s ratings issue more surplus notes after deciding to issue. Overall, our results provide strong support to the financial distress hypothesis, and marginal support to the agency costs and asymmetric information hypotheses. Our analysis has important implication for how regulators should regulate the issuance of surplus notes and how rating agencies control credit risk of issuers by insurer’s characteristics such as size and organization form.

The rest of paper is organized as follows. In part 2, we introduce the background about securitization of surplus notes and review the previous research on the surplus notes issuance. We disclose the potential determinants of securitized surplus notes issuance in part 3. We then describe our data and methodology in part 4. Empirical results are presented in the part 5, and we conclude in part 6.

2. Background and Literature Review

2.1. Standalone Surplus Notes Issues

Surplus notes are unsecured debt obligation issued directly by insurance operating companies and thereby provide double advantages to issuers: the interest payments are tax deductible as surplus notes are reported as debt on a GAAP basis, and at the same time, they are treated as statutory surplus by state regulator and included in the calculation of total adjusted capital (TAC) of RBC ratio by NAIC. Regulators usually treat surplus notes as statutory capital on the basis of not only its deep subordination and unsecured, but also regulator’s control on payments to surplus notes. Under the most restrictive condition, some state regulators (e.g. New York and California) require approval for any interest payment and principal repayment of surplus notes before
insurers want to do so\(^1\). As a less rigid form, some state regulators (e.g. New Jersey) permit pre-approval for interest and principal payments on case that insurers have met some explicit requirements\(^2\). Because of the equity-like nature of surplus notes, the disapproval of interest or principal payments on both two types of surplus notes by regulators is not regarded as default, and interest is cumulative and payable once obtaining approval.

Despite some dividing opinions regarding pre-approval surplus notes between regulators\(^3\), major rating agencies view both types as equity as long as they meet certain criterion on maturity, subordination, and payment restriction. For instance, A.M. Best requires equity-like surplus notes: (1) have a stated maturity of 10 to 30 years; (2) subordinate to policyholders, claimants, beneficiary claims and other classes of creditors; (3) any interest and principal payment is subject to approval of state regulators. Similarly, S&P’s considers long maturity (at least 10 years) and structure (subordination and no ongoing payments leading to bankruptcy) to be two basic requisites of equity treatment for surplus notes. On the other hand, to address the hybrid nature of surplus notes, rating agencies only taking account certain percentage of surplus notes in calculating financial ratios. Based on the A.M. Best’s continuum, surplus notes usually receive 25% to 50% equity credit of their face amounts. The major three rating agencies (S&P’s, Moody’s, and Fitch) do not explicitly indicate the amount of equity credit

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\(^1\) Despite no specific guideline or interpretation regarding how state regulators determine the payment approval, it is widely held that the insurers’ own financial conditions are the underlying bottom line for decision.

\(^2\) Most common requirements include: (1) insurers has not defaulted any claim or indebtedness; (2) no federal or state agency has filed any action (e.g. rehabilitation, liquidation, conservation, or dissolution) on insurers; (3) insurers’ RBC ratio must exceed the minimum level after principal repayments.

\(^3\) In December 2003, a NAIC subcommittee tentatively voted that the second form of surplus notes should be accounted for as liability as a result of its pre-approval feature and nominal requirements. However, this decision is never finalized since then.
surplus notes will receive, but they publicly provide their own debt-equity continuum or equity credit list as a reference.

Historically, surplus notes were mainly issued by troubled insurers to policyholders for additional surplus since they usually had no other access to capital. Crippled by their limited access to capital markets, mutual insurers also used surplus notes to relieve the sole dependence on retained earnings to grow their statutory equity. In addition, insurers directed their proceeds from surplus notes towards mitigating operating leverage pressures, retaining additional profitable business in lieu of quota share participations from their reinsurers, funding acquisitions, and refinancing more expensive debt that may not receive equity-like treatment from the rating agencies.

In 1990’s, large insurers such as Prudential, MetLife, and New York Life dominated the surplus notes issuance market (Dumm and Hoyt, 1999), as scale of economy made them more efficient to finance externally. Unfortunately, the trickle down effect originating from this large company syndrome became tenuous for small and mid-sized insurers because the hurdles of traditional financing still plagued with the rise of surplus notes. From the issuer’s view, fees paid to investment bankers and rating agencies\(^4\) made the costs of standalone debt issuance in small size unaffordable. Vicissitudes of debt markets also made pricing of individual issuance very difficult. From the investor’s perspective, surplus notes tend to be rather illiquid instruments due to the absence of an exchange listing and private placement to institutional investors.

Therefore, investments on surplus notes issued by small and mid-sized insurers without proven track records were confined to the most sophisticated investors.

\(^4\) A large proportion of small and mid-sized insurers do not obtain public ratings from major rating agencies, so investors usually require rating before the issuance. Furthermore, unfavorable rating change may deteriorate the insurers’ financing burden.
2.2. Securitization of Surplus Notes

The emergence of insurance CDO pools opened up a cost-efficient solution to reach broad investor circles for small and mid-sized insurers. Exhibit 1 briefly illustrates the typical cash flow structure of insurance CDO pools. Around 30 to 40 insurance companies issued surplus notes or trust preferred securities (TPS)\(^{56}\) to special purpose vehicles (SPVs) with maximum single issuer concentration of 2.5% to 5.0%. Collateral manager pools these collateral securities together, and issues CDO in different tranches rated by rating agencies. CDO tranches are usually sold directly to institutional investors under Rule 144A of the 1933 Securities Act, and proceeds are channeled back to insurance companies. Because CDO tranches are rated and some are even listed on exchanges, it essentially creates demands on the buy side. More important, the pooling of individual small or mid sized issuers increases the debt capacity and drives down the costs of funding compared to standalone issuance. The average pool size originally was around $350 million to $400 million, and further increased to $600 million to $700 million after the invention of hybrid CDO pools mixing collaterals from banks and insurers. The spread of surplus notes over LIBOR ranged from 350 to 450 basis points, depending on the size and credit quality of collaterals, and was dragged down modestly (around 50 bps) by lower spreads on bank papers in the hybrid pools. In addition, the

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\(^5\) A Trust preferred securities are preferred shares issued by a business trust formed by a company seeking to raise capital, generally bank and insurance holding companies. The company establishes the trust and sells deeply subordinated deferrable interest debentures to the trust. The trust pays for these debentures with the proceeds of preferred shares sold to investors. The debentures are the only assets of the trust. Large proportion of small and mid-sized insurers do not obtain public ratings from major rating agencies, so investors usually require rating before the issuance. Furthermore, unfavorable rating change may deteriorate the insurers’ financing burden.
individual issuance amount increased in line with the whole pool size, and the fees\(^7\) related to the issuance also decreased slightly (around 3.0 – 5.0 bps).

Basically, surplus notes and trust preferred securities are very similar with respect to payment deferral, length of maturity, non-call option, non-amortization, and the credit spread. For instance, surplus notes usually have long maturities at least 10 years with a typical of 30 years, and insurers can defer interest payments to surplus notes for up to five years. Like trust preferred securities, surplus notes can be redeemed before the stated maturity under certain conditions. However, surplus notes have two important distinctions from trust preferred securities: First, surplus notes are issued by operating insurance companies, while trust preferred securities are issued by insurance holding companies that depend on up-streamed dividends to service the debt. Hence, small and mid-sized mutual insurers without the holding companies are only able to gain access to capital with surplus notes instead of trust preferred securities. Second, surplus notes are subject to greater regulatory scrutiny and restrictions on such issues as pre-issuance approval and interest rate cap than holding company debts like trust preferred securities. Accordingly, surplus notes issuers usually are able to maintain lower ratings than trust preferred issuers.

Rather than merely comparing demand and supply of surplus notes securitization by industry practitioners, the academicians tend to explore the underlying incentives of securitization. After exploring the deal structures, Cowley and Cummins (2005) argue that securitization may help insurers mitigate bankruptcy costs, agency costs, and regulation costs. First, securitization can reduce insurers’ transaction costs including

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\(^7\) Typically, senior fees, subordinated fees, trustee fees account for 3% of issuance amount. Administrative expenses amount to $1000 to $3000 per year. Sometimes, the underwriters will compensate issuers the rating costs.
bankruptcy costs. Second, relatively homogenous assets including mortgage, bonds, and insurance policies are put in the pools through securitization, so less informational asymmetry are contained in the asset pools. Third, issuers have to disclose financial information to rating agencies and investors to market the offerings and receive ratings, which further reduce the information asymmetry. Last, securitization preclude assets held in SPV from the influences by managers’ other activities, and therefore securitization would reduce possible agency costs. Iacobucci and Winter (2005) suggest that securitization not only decreases information asymmetry between investors and insurers, but also reduces information asymmetry among different classes of investors possessing different level of private information. In addition, securitization may help reduce agency costs for the following reasons: First, securitization may enhance monitoring efficiency by reducing ambiguousness in distinguishing firm performance and management performance; second, securitization puts managers’ reputation as a discipline on management, so investors regard securitization as a signal of higher quality of management; third, securitization may optimize the management incentive contract and improve the efficiency of management incentive.

2.3. Research on Securities Offerings by Insurers

Notwithstanding extensive research on securitization of catastrophic bonds (Cummins, Lalonde, and Phillips, 2004; Doherty, 1997; Doherty and Schlesinger, 2002), existing studies on securitization of surplus notes are very spare in both the industry and academia. Fitch Ratings (2005) surveys all CDO pools backed by collaterals of trust preferred or surplus notes issued from 2002 to 2005, and find that insurers in CDO pools are generally small P-C underwriters with concentrated business lines and limited access
to capital markets. On the other hand, banks participating in CDO pools are relatively larger than the average bank. Dumm and Hoyt (1999) investigate the standalone surplus notes issuance by life insurers during the period from 1992 to 1995. They find that mutual insurers, insurers affiliated to a group, insurers with lower A.M. Best financial strength rating, or insurers with weaker NAIC RBC ratio are more likely to issue surplus notes. They conclude that life insurers capitalize on surplus notes to avoid financial distress, regulatory scrutiny, and limited access to capital.

Nonetheless, several literatures cover other hybrid securities such as trust preferred securities, subordinated debts, and mandatory convertibles issued by insurers, banks and other firms. Engel, Erickson, and Maydew (1999) find that the issuers of trust preferred securities are larger than the average in their industries. They examine a sample of 28 companies issuing trust preferred securities to retire preferred stocks, and find significant tax savings at about 28% of issued security amount. Besides, they find substantial incentive of firms to improve their capital structure by issuing trust preferred securities to redeem their debts. Benston, Irvine, Rosenfeld and Sinkey (2003) discover significant positive abnormal stock returns of bank holding companies issuing trust preferred securities after Federal Reserve announced the qualification of trust preferred as Tier One capital on October 21, 1996. They subsequently implement univariate and multivariate probit test to differentiate the trust preferred issuers and non-issuers. The results are generally consistent: compared to non-issuers, trust preferred issuers are larger, have higher tax rate and riskier funding structure, as well as maintain higher insolvency risk and less equity and Tier One capital. Therefore, they conclude that trust preferred issuances are mainly driven by tax savings and regulatory capital requirements,
while offset by transaction costs related to issuance. Although they do not find convincing evidence to show the banks with more growth opportunities are more likely to issue trust preferred, their findings strongly reject the moral hazard hypothesis that undercapitalized banks are less likely to issue trust preferred securities and more willing to take advantage of under-priced federal deposit insurance.

Sironi (2003) examines the impact of bank risks on the issuance spread (or primary spread) of subordinated debts issued by European banks during the period of 1991 to 2000. He finds that the market discipline bank behaviors by taking the rating agencies’ financial strength rating and loan loss reserve to total loans ratio into account when accessing the risk. Their findings suggest that the higher financial soundness of banks, the lower spreads borne by subordinated debts. Ambrose, LaCour-Little, and Sander’s (2004) compared the default rate of securitized mortgage loans and un-securitized mortgage loans, and find that securitized loans have lower default risks than un-securitized loans. They attribute this difference to reduced information asymmetry about mortgage loans by repeated transactions between primary loan underwriters and secondary securitization market participants (Fannie Mac and Freddie Mae). In addition, their results advice that the mortgage loan underwriters may use securitization to arbitrage on regulatory capital requirements on securitized and un-securitized loans. Yan, Nandy and Chemmanur (2004) suggest that the underlying rationales of issuing mandatory convertibles include decreasing private information about the firm, financial distress costs, and tax burden.

3. Potential Determinants of Securitized Surplus Notes Issues
Following the previous studies on hybrid securities and risk securitization (Dumm and Hoyt, 1999; Cowley and Cummins, 2005; Benston, Irvine, Rosenfeld and Sinkey, 2003; Cummins, Lalonde and Phillips, 2004), we investigate the underlying factors that drive the P-C insurers’ demands for selling surplus notes in CDO pools as follows:

**Information Asymmetry**

Bank literatures have already pointed out that information asymmetry with regard to loan risks plays an important role in banks decision to securitize their loans. DeMartzo and Duffie’s (1999) model argues that if banks intend to tap their private information about loan risk, they may securitize high risk loans and retain low risk loans in their book. As a result, the investors have to set up stricter credit standards to protect themselves from adverse selection problem. After repeated negotiation and transactions, banks will retain high risk loans in their book while securitizing low risk loans to sell out securitized securities. On the other hand, DeMarzo (2005) builds a model to illustrate that the investors may process superior evaluation ability and various hedging instruments (e.g. tranching and derivative), and thereby reduce their adverse selection risk. One natural extension of DeMarzo’s (2005) model is that banks still have opportunities to capitalize on their private information about loan risk profiles.

Similarly, Zhang, Cox, and Van Ness (2005) provide empirical evidence to show that the information asymmetry about underwriting book in the insurance markets can cause severe adverse selection costs in the secondary stock markets, especially for P-C insurers. As the opaqueness of underwriting portfolios may deteriorate the information asymmetry between insurers and investors, Cowley and Cummins (2005) suggest that insurers may mitigate their information asymmetry during the process of securitization.
They argue that the rating agency’s rating analysis, actuarial report, and cash flow analysis of SPV will contribute to increasing information transparency of insurers’ business. One important measure of opaqueness of insurance underwriting business is the adverse reserve development. Rothschild and Stiglitz (1976) establish a model to indicate that opaqueness regarding underwriting liabilities is widely present between the insurer and the insured, and therefore the insurer is not able to accurately estimate the future loss in their business mix. Concentrating on intra-day stock trading data of P-C insurers, Ruhland and Sommers (2004) find a significant relation between adverse loss reserve development and informational asymmetry in stock trading transaction. As small or mid-sized insurers possess adamant opaqueness embodied in their underwriting book, the securitization process including tranching and credit enhancement will help them alleviate the information asymmetry problem of their business.

Reserve deterioration may also lead to insurers’ insolvency since severe loss reserve deterioration will cause the drain of surplus (Carson and Hoyt, 1995). In an A.M. Best survey (A.M. Best 2004) on insolvent P-C insurance companies from 1969 to 2002, major reasons of insolvency are deficient loss reserve (54%), fraud (16%), and catastrophe losses (7%). As a result, insurers may engage in surplus notes securitization to cushion the loss of capital and avoid the regulatory action (Cowley and Cummins, 2005). From the regulators respective, reserve insufficiency is also regarded as one important measure of underwriting risk, one of four components of RBC calculation when they monitor the financial soundness of insurers. Hence, reserve development will be an important determinant of insurers’ willingness to issue surplus notes in securitization transactions.
Rating Agency’s Rating

As an independent rating agency specializing in insurance industry for over one century, A.M. Best assigns financial strength ratings to almost all insurers in North America which reflect insurers’ financial strength and ability to meet ongoing obligations to policyholders (A.M. Best, 2006). A.M. Best groups their ratings into two main segments: secure and vulnerable, and further breaks down into several categories, which are shown on Exhibit 2.

To avoid the financial distress costs, firms with higher default risk are less likely to depend on internal capital accumulation and are more eager to obtain capital from outside sources. Prior studies (Adiel, 1996; Anthony and Petroni, 1997; Cummins and Danzon, 1997; Pottier, 1998) have used A.M. Best’s financial strength rating to measure insurers’ financial soundness and represent insolvency risk. Using A.M. Best’s financial strength rating as proxy for default risk of life insurers, Dumm and Hoyt (1999) find significant evidence that insurers with lower ratings are more willing to issue surplus notes. Cowley and Cummins (2005) argue that insurers are confronting higher financial distress costs as they facing more rigid regulatory scrutiny and operational restrictions. As a result, securitization will be an effective way for insurers to relief their financial distress costs. For surplus notes securitization, the similar logic prevails: as insurers with low ratings have limited access to traditional financing methods, participation in insurance CDO provides a feasible alternative to additional capital.

Organization Form

Cummins, Lalonde and Philips (2004) argue that mutual insurers are more averse to risk because policyholders are overexposed to risk to purchase insurance policy and
managers are also risk averse to concern their job security. Therefore, mutual insurers are more efficient in catastrophic securitization than stock insurers. In contrast, stock insurers can tolerate higher level of insolvency risk based on agency costs theory (Cummins and Sommer, 1996; Smith and Stutzer, 1990), and this proposition receives support from empirical studies (Lamm-Tennent and Starks, 1993). Moreover, in the structure of insurance CDO, surplus notes are more often issued by mutual insurers than by stock insurers, since surplus notes provide opportunities tapping capital markets to the mutual that is owned by policyholders and as such cannot increase its capital bases by raising equity. Using a panel dataset from 1992 to 1995, Dumm and Hoyt (1999) find empirical evidence that life insurers in the mutual form are more likely to issue surplus notes.

Size

There exist conflicting theories about the effect of firm’s size on surplus notes issuance. Cummins, Lalonde and Philips (2004) suggest that larger firms have higher ability to implement index-linked securitization, since the fixed and variable costs of acquiring expertise incurred during the deals are more affordable to larger firms. On the contrary, Dumm and Hoyd (1999) find evidence to support their hypothesis that smaller insurers are more eager to issue surplus notes since they lack the similar access to capital markets as their larger counterparties and need more capital for growth.

Underwriting Leverage

As one of twelve IRIS ratios, net premiums written (NPW) to surplus ratio measures the ability of insurers’ surplus to absorb adverse loss from underwriting business. This ratio is also regarded as a proxy of underwriting leverage by practitioners
and rating agencies. Higher ratio indicates lower adequacy of surplus to withhold any future loss deterioration and undermines insurers’ financial strength. Hence, financial distress hypothesis assumes that larger policyholder claims derived from unfavorable loss create the predominant bankruptcy risks (Chamberlain and Tennyson, 1998). Carson and Hoyt (1995) examine various insolvency prediction models and identify underwriting leverage as a significant indicator of life insurer financial strength.

*Financial Leverage*

Financial distress costs hypothesis suggests that higher proportion of debts in total assets leads to higher probability of bankruptcy and offsets the tax shield benefits (Stiglitz, 1972). Other studies on capital structure also reveal that higher financial leverage would increase bankruptcy costs and decrease firm value (Stiglitz, 1972). As surplus notes receive equity like treatments from regulators and rating agencies, issuance of surplus notes in insurance CDO will mitigate capital constraints imposed on insurers’ balance sheet caused by adverse loss reserve development or investment loss.

Agency costs theory (Jensen and Meckling, 1976) indicates that debt generates agency costs due to three reasons. First, asset substitution in the interests of the agent transfers wealth from debt holders to owner-manager. Second, the prevention of wealth transfer incurs monitoring and bonding costs. Last, there exist direct or indirect bankruptcy costs related to the fixed claim of debt holders. Meanwhile, agency costs theory predicts that high financial leverage reduces the free cash problem, and thereby relieves the agency costs problem (Jensen, 1986). Therefore, insurers may intend to issue surplus notes to reduce agency costs.

*Capital Adequacy*
Numerous studies (Carson and Hoyt, 1995; Staking and Babbel, 1995) have already indicate that insurers capitalization provides the significant indicator of insolvency and capital provides the most important cushion for policyholders. As a highly regulated industry, insurance companies receive prominent attention on insolvency issue. After collapse of several large insurers in early 1990’s, NAIC adopted a series measures to monitor insurers’ financial strength, including the risk-based capital ratio and FAST system. NAIC implemented Risk-Based Capital Ratio (RBC) in 1993 to establish minimum capital adequacy requirement relative to risks assumed by insurers encompassing 4 categories: asset risk, liability risk, business risk, and miscellaneous risk. NAIC has stated that RBC is not a measure of insolvency alone, and RBC has to be used with other ratios to reflect overall financial condition for an insurer. Consistent with this statement, Grace, Harrington and Klein (1998) find that although RBC ratios have less predicting power than Financial Analysis Tracking System (FAST) ratios, RBC ratios still convey new information about insolvency risk when combining with FAST ratios. Dumm and Hoyt (1999) also find that life insurers with lower RBC ratio are more inclined to issue surplus notes.

*Group Affiliation*

Cummins, Lalonde and Philips (2004) suggest that an affiliated insurer is less diversified than single insurer since the group diversifies across subsidiaries, and therefore a group member has limited ability to involve in catastrophic index-based securitization due to larger basis risk. On the other hand, Dumm and Hoyt (1999) find that life insurers affiliated to a group are more likely to issue surplus notes than nonaffiliated insurers, since
groups can allocate capital in internal capital markets to support subsidiaries experiencing financial distress.

4. Research Design

4.1. Data

The major data source is the A.M. Best Property & Casualty Statement Database 2004 version that contains the most comprehensive information of American insurers filed to National Association of Insurance Commissioner (NAIC). Many insurers are affiliated to group, so A.M. Best provides statutory financial data for both operating companies and holding companies. However, we focus our sample on individual companies since surplus notes are issued exclusively by operating companies. On NAIC regulatory statements, insurers report the detail of surplus notes issuance in Notes to Financial Statement. From the subtitle of number 13, “Capital and Surplus, Dividend Restrictions and Quasi-Reorganizations”, we find that out of 62 surplus notes issuance by P-C insurers in 2003, 45 are directly issued in a CDO pool. The remaining 17 surplus notes are issued to policyholders or holding companies.

Following Cummins, Philips, and Smith (2001), we eliminate insurers with zero or negative assets, premiums, and surplus and insurers without enough group affiliation identification. We also eliminate insurers that were under any regulatory action taken by state insurance regulators during 2003\(^8\). The final sample after screening consists of 1686 observations from P-C insurers for the time period of year 2003, including 45 issuers of surplus notes in CDO pools.

4.2. Methodology

\(^8\)The normal operation including outside financing will be under strict restriction by state regulators if the insurer is under regulatory action.
To estimate the effects of firm characteristics on surplus notes issuance, we essentially estimate the following model for the insurers in our final sample:

\[
Surplus~Notes_i = f(\text{Reserve Devp}_i, \text{Size}_i, \text{BestRating}_2, \text{BestRating}_3, \text{BestRating}_4, \text{BestRating}_5, \text{BestRating}_\text{NR}, \text{Organization}_i, \text{Underwriting Leverage}_i, \text{Financial Leverage}_i, \text{RBC}_i, \text{Group}_i)
\]

(1)

Where:

\(Surplus~Notes_i\) = Surplus notes notional value issued by the insurer \(i\) scaled by total assets;

\(\text{Reserve Devp}_i\) = the two-year reserve development divided by the insurer \(i\)’s surplus;

\(\text{Size}_i\) = the natural logarithm of total assets for the insurer \(i\);

\(\text{BestRating}_1\) = a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of A++ or A to the insurer \(i\), or 0 if otherwise (Not in the regression);

\(\text{BestRating}_2\) = a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of A or A- to the insurer \(i\), or 0 if otherwise;

\(\text{BestRating}_3\) = a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of B++ or B+ to the insurer \(i\), or 0 if otherwise;

\(\text{BestRating}_4\) = a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of B or B- to the insurer \(i\), or 0 if otherwise;

\(\text{BestRating}_5\) = a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of C++ or below to the insurer \(i\), or 0 if otherwise;

\(\text{BestRating}_\text{NR}\) = a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of NR to the insurer \(i\), or 0 if otherwise;
Organization\(_i\) = a dummy variable that is equal to 1 if the insurer \(i\) is a stock firm, or 0 if otherwise;

Underwriting Leverage\(_i\) = the net premiums written divided by the insurer \(i\)’s surplus;

Financial Leverage\(_i\) = the insurer’s equity/surplus divided by total assets;

\(RBC_i\) = the NAIC RBC ratio that is equal to adjusted capital divided by authorized control level risk-based capital as estimated by the NAIC; and

Group\(_i\) = a dummy variable that is equal to 1 if the insurer is a group member or 0 if otherwise.

To address the severity of information asymmetry and subsequent possibility of reserve strengthening, we include two-year reserve development divided by surplus (\(ReserveDevp\)), one of twelve Insurance Regulatory Information System (IRIS) ratios used by NAIC to monitor insurers’ financial condition. We expected this variable to be positively related to surplus notes issuance.

Following Dumm and Hoyt (1999), we categorize insurers into the following classes: BestRating 1 if the insurer’s rating is A++ or A+ (Superior), BestRating 2 if the insurer’s rating is A or A- (Excellent), BestRating 3 if the insurer’s rating is B++ or B+ (Very Good), BestRating 4 if the insurer’s rating is B or B- (Fair), and BestRating 5 if the insurer’s rating is C++ or below. Finally, we take all Not Rated Categories (NR-1 to NR-5) into account as one class, BestRating NR. We do not include BestRating 1 in the regression, so the coefficients of BestRating 2, BestRating 3, BestRating 4, BestRating 5 and BestRating NR illustrate the impacts on the surplus notes utilization pattern if the insurer’s rating deteriorate from Superior to less secure. The projected sign of this variable is positive.
We assign 1 to variable representing ownership structure (Organization) if the insurer is a stock firm or 0 otherwise. Following McShane and Cox (2005), we regard stock insurers held by a mutual still as stock, since the study by Lee, Mayers and Smith (1997) finds that managers of mutual-owned stock insurers behave more like those of stock insurers. Based upon the previously cited theories and empirical studies, we expect the sign to be negative.

Following the prior studies, we measure the insurer’s size by natural logarithm of total assets (Size). As the result of conflicting hypotheses, we cannot determine the direction of this variable.

To account for the desire to strengthen capital base due to underwriting leverage difference across insurers, the NPW-to-surplus ratio is used (UnderwritingLeverage), and the expected sign is positive. Financial leverage is measured as surplus to total assets ratio (FinancialLeverage), we expect financial leverage to have a positive relation to surplus notes activities.

Following Dumm and Hoyt (1999), we use an RBC ratio (RBC) that is equal to total adjusted capital deducted by surplus notes issued then divided by authorized control level risk-based capital9, and expect the impact of this variable on the total risk is negative. Following Dumm and Hoyt (1999), we add a dummy indicating membership (Group) in an insurance group and expect it to be positively related to surplus notes issuance.

First, we implement Tobit model to estimate equation (1). Because our dependent variable is both censored and concentrated, the OLS estimate is not consistent and usually biased toward zero (Greene, 2002). On the contrary, the Tobit model uses the maximum

---

9 NAIC establishes four levels of regulatory action, but the authorized control level is considered to be the primary triggering point since it is equal to the result of RBC formula developed by NAIC working groups.
likelihood function to incorporate two different sets of observations: one set with observable independent variables and unobservable dependent variable, and the other with both observable dependent and independent variables. Therefore, Tobit model is a conceptually better approach than OLS to estimate censored data.

However, Tobit model fails to deal with the sample selection problem in that Tobit model cannot explain why the data is censored, and therefore cannot account for those censoring thresholds that determine insurers’ decision to issue surplus notes. Heckman model (1979) provides a solution to the problem by a two-step regression: The first step is to regress equation (2) for the full sample by a Probit model and calculate the inverse miller ratio $\hat{\lambda}$, a measure of omitted variable. The second step is to insert $\hat{\lambda}$ into the equation (3) as a regressor, and regress equation (3) by OLS with consistent standard error.

\begin{align*}
\text{Probability}(\text{Surplus Notes}_i) &= k(\text{Reserve Devp}_i, \text{Size}_i, \text{BestRating}_2_i, \text{BestRating}_3_i, \\
&\quad \text{BestRating}_4_i, \text{BestRating}_5_i, \text{BestRating}_N R_i, \text{Organization}_i, \\
&\quad \text{Underwriting Leverage}_i, \text{Financial Leverage}_i, \text{RBC}_i, \text{Group}_i) \\
(2)
\end{align*}

\begin{align*}
\text{Surplus Notes}_i \mid \text{Pr} o > 0 &= j(\text{Reserve Devp}_i, \text{Size}_i, \text{BestRating}_2_i, \text{BestRating}_3_i, \\
&\quad \text{BestRating}_4_i, \text{BestRating}_5_i, \text{BestRating}_N R_i, \text{Organization}_i, \\
&\quad \text{Underwriting Leverage}_i, \text{Financial Leverage}_i, \text{RBC}_i, \text{Group}_i, \hat{\lambda}) \\
(3)
\end{align*}

Cragg (1971) suggests a two-hurdle approach to model censored data: observations are observed only after two hurdles are passed. In the first decision (participation decision), the insurer decides whether he wants to issue surplus notes. After making the decision to issue, the insurer then decides how much he wants to issue. Fin and Schmidt (1984) point out that each independent variable may affect two decisions independently,
but the Tobit model assumes that each variable affect two decisions in the same direction. For instance, a building age would be positively related to probability of fire accident, while the damage caused by the fire may be negatively related to the building age. Recent studies (Cummins, Phillips, and Smith, 2001; Carter and Simpson, 2004; Lin and Schmidt, 2004) on censored data demonstrate that Cragg model, as a generalized Tobit version, is more flexible than Tobit model and Heckman model, especially when the participation decision is independent of volume decision.

To address this problem, we use the Cragg model as our last estimation method. Specifically, in the first step (participation decision), we use the Probit model to estimate the likelihood that an insurer issues surplus notes or not in the equation (4) by using all insurers no matter they issue surplus notes or not. In the second step, we implement truncated regression model to estimate the equation (5) using the insurers that issue surplus notes in insurance CDO. We also use likelihood ratio test to compare these two models to test the null hypothesis that the coefficients affect two decisions in different ways.

\[
\Pr(\text{Surplus Notes}_i) = g(\text{Reserve Devp}_i, \text{Size}_i, \text{BestRating 2}_i, \text{BestRating 3}_i, \\
\text{BestRating 4}_i, \text{BestRating 5}_i, \text{BestRating NR}_i, \text{Organization}_i, \\
\text{Underwriting Leverage}_i, \text{Financial Leverage}_i, \text{RBC}_i, \text{Group}_i)
\]

(4)

\[
\text{Surplus Notes}_i | \Pr o > 0 = h(\text{Reserve Devp}_i, \text{Size}_i, \text{BestRating 2}_i, \text{BestRating 3}_i, \\
\text{BestRating 4}_i, \text{BestRating 5}_i, \text{BestRating NR}_i, \text{Organization}_i, \\
\text{Underwriting Leverage}_i, \text{Financial Leverage}_i, \text{RBC}_i, \text{Group}_i)
\]

(5)

5. Empirical Results
5.1. Summary statistics

Panel A of Table 2 shows the summary statistics of all variables used in the paper. The loss reserve deteriorates 10% relative to surplus in average, while the median value is relatively modest, at 1% rate. Over 80% insurers maintain an A.M. Best’s financial strength rating over “B+”, or secure rating, while less than 20% insurers hold a vulnerable rating. Specifically, the class of BestRating 5 which combine C++, C+, C, C-, D, E, F and S rating only accounts for less than 5% of total insurers, while the class of BestRaitng NR including NR-1 to NR-5 accounts for 11% of total insurers. The mean of organization dummy is 0.77 and its median is 1, which suggests that stock insurers account for over 70% of our sample. Similarly, the mean of group dummy is 0.71 which shows that the majority of insurers are group affiliated. The regulatory risk-based capital ratio is 831%, well above the 200% threshold that triggers regulatory actions.

Panel B compares the statistics of 45 surplus notes issuers and 1641 non-issuers, which demonstrates several differences between two sub-samples. Issuers experience more favorable loss reserve development than non-issuers, and issuers are significantly larger than non-issuers. The Best’s ratings of issuers more concentrate on Excellent (A or A-) and Very Good (B++ or B+). Issuers write more business relative to surplus than non-issuers, and issuers’ capital option is weaker than non-issuers, as evidenced by both smaller surplus-to-assets ratio and regulatory risk-based capital ratio. Only 33% of issuers are stock insurers, while 78% of non-issuers are stock insurers. There have no significant differences of group affiliation between two sub-samples.

10 We also implement Pearson correlation test for all independent variables. Most correlation coefficients are minimal and all are less than 0.50 so intercorrelation of the independent variables is not a problem. We are pleased to provide results upon request.
5.2. Regression results

In Table 4, we report the estimate results of Tobit model and Cragg model, respectively\textsuperscript{11}. The first column shows the results of Tobit model, which suggest that Best’s ratings, size, and organization form significantly affect insurers’ surplus notes issuance. In particular, insurers with lower A.M. Best’s financial strength rating issue more surplus notes, which suggests that issuers use surplus notes to alleviate the financial distress costs and regulatory pressures. Significant and positive coefficient estimate of size is more consistent with Cummins, Lalonde and Philips (2004) than Dumm and Hoyt (1999), suggesting that larger insurers issue relatively larger amounts of surplus notes in CDO offering than small and mid-sized insurers. Result for organization dummy is consistent with our hypothesis that mutual insurers issue more surplus note to strengthen their capital bases. The other estimates such as group dummy, RBC ratio, financial and underwriting leverage are generally in line with our hypotheses although none of them is significant. One exception is that estimate of reserve development is negative while it is insignificant.

To account for different effects of firm characteristics on participation and volume decisions, the results of Cragg model are shown in the last two columns. The first step of Cragg model, using Probit model to estimate the participation decision, is the same as the first step of Heckman model. However, there have significant differences about how each factor affects the participation and volume decisions. Two most predominant differences lies in size and organization form. In contrast to the participation decision, smaller insurers and stock insurers issue relatively more surplus notes.
notes. This result suggests that although bigger insurers and mutual insurers are more likely to participate in surplus notes securitization deals, smaller insurers and stock insurers actually issue in relatively larger denomination once they decide to issue. Our speculation about opposite sign of size variable is that there exists a size hurdle to some extent for pool candidate. After participating in the pool, the smaller insurers are more eager to the new capital. For the opposite sign of organization form, our explanation is that although surplus notes are natural choice for mutual insurers compared to trust preferred securities, stock insurers may pile up larger capital to support their business underwriting. In addition, insures with weaker RBC ratio are more inclined to issue surplus notes, while the capital adequacy level seems to have no significant impact on the amount of issuance. Similarly, although the group affiliation will not affect insurers’ willingness to issue, insurers affiliated to the group do issue larger amounts of notes. Furthermore, the coefficients of Best’s Ratings suggest the insurers with lower ratings are more likely to issue surplus notes, and the insurers with marginal ratings intend to issue larger amount of surplus notes.

At last, we test the hypothesis that each factor affects both two decisions in the same way following the likelihood ratio test suggested by Greene (2003). The significant Chi-squared statistic rejects the null hypothesis. In sum, this result favors Cragg model over Tobit model.

6. Conclusion

Having been utilized by insurers for over half century, surplus notes have become an increasingly popular financing tool for small and mid-sized insurers in recent years with supports from vibrant securitization markets. It is critical to explain what factors
determine insurers’ decision to participate in surplus notes securitization offerings, and their subsequent decision on how much to issue. Their issues are also closely related to the economic rationale underlying insurers’ securitization.

Prior studies focus on trust preferred securities used in the banking industry (Harvey, Collins, and Wansley, 2003) and insurance industry (Pottier, 2004), while researchers seldom investigate surplus notes in recent securitization deals. This study intends to fill up this gap by identifying the factors affecting P-C insurers’ behaviors in surplus notes securitization.

Our results from preliminary Tobit model show that large insurers, mutual insurers, and insurers with weaker A.M. Best’s rating issue more surplus notes in insurance CDO deals. Next, we implement models to address sample selection problem in censoring data, and separate different effects on participation and volume decisions. Our results show that organization, size, risk-based capital ratio and A.M. Best’s ratings impact significantly on insurers’ decision to participate in surplus notes securitization, although Heckman estimation suggests sample selection problem is not serious in our sample. However, significant disparity exists in the factors underlying in the participation and volume decisions. For instance, bigger insurers and mutual insurers, and insurers with lower risk-based capital position are more inclined to participate in surplus notes issuance, while smaller insurers, stock insurers and insurers affiliated to a group issue larger amounts once they decide to issue. The insurers with weaker A.M. Best’s ratings are more likely to issue notes, and those with marginal issuers issue larger amounts of notes. Overall, our results provide supports to financial distress costs and agency costs hypotheses.
One important implication for future research emerges from this study. As more and more small and mutual insurers are pouring into insurance CDO pools, regulators and rating agencies should watch the trend closely, monitor insurers risk profile by firm characteristics, and gauge the whole pool’s risk by considering underlying rationale of issuance. Further research on effects of rating agencies rating on insurers’ participation decision and volume decision on surplus notes issuance needs to be furnished.
Reference


A.M. Best, 2005, “Rating Surplus Notes and Insurance Trust-Preferred CDOs”, A.M. Best Methodology


Exhibit 1: Surplus Notes/Trust Preferred Pool

- Trust Preferred Securities
  - Holding Companies
    - Junior Subordinated Debts
    - Proceeds
      - Business Trusts
        - Long-term Subordinated Debts
          - Proceeds
            - Special Purpose Vehicle (SPV)
              - Collateral Debt Obligations (CDO)
                - Proceeds
                  - Investors
          - Surplus Notes
            - Proceeds
              - Operating Insurance Companies

- Surplus Notes
Exhibit 2: Hierarchy of AM Best’s Financial Strength Rating

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<tr>
<th>Secure</th>
<th>Vulnerable</th>
<th>Not Rated Categories (NR)</th>
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</thead>
<tbody>
<tr>
<td>A++, A+ (Superior)</td>
<td>B, B- (Fair)</td>
<td>NR-1: Insufficient Data</td>
</tr>
<tr>
<td>A, A- (Excellent)</td>
<td>C++, C+ (Marginal)</td>
<td>NR-2: Insufficient Size and/or Operating Experience</td>
</tr>
<tr>
<td>B++, B+(Very Good)</td>
<td>C, C- (Weak)</td>
<td>NR-3: Rating Procedure Inapplicable</td>
</tr>
<tr>
<td></td>
<td>D (Poor)</td>
<td>NR-4: Company Request</td>
</tr>
<tr>
<td></td>
<td>E (Under Regulatory Supervision)</td>
<td>NR-5: Not Formally Followed</td>
</tr>
<tr>
<td></td>
<td>F (In Liquidation)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S (Rating Suspended)</td>
<td></td>
</tr>
</tbody>
</table>
Table 1: Summary Statistics
This table shows the summary statistics of 1686 property casualty insurers in samples. The time period is the whole year of 2003. Panel A shows the statistics for the total sample, and Panel B compares statistics of issuers and non-issuers sub-sample. Mean is the average of variables. Std Dev is the standard deviation of variable. Min is the minimum value of variable. Max is the maximum value of variable. Median is the median value of variable. Surplus Notes is the surplus note issuance value scaled by total assets. Reserve Development is the two-year reserve development divided by insurers’ equity/surplus. BestRating 1 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of A++ or A+ to an insurer, or 0 if otherwise. BestRating 2 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of A or A- to an insurer, or 0 if otherwise. BestRating 3 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of B++ or B+ to an insurer, or 0 if otherwise. BestRating 4 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of B or B- to an insurer, or 0 if otherwise. BestRating 5 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of C++ or lower to an insurer, or 0 if otherwise. BestRating NR is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of NR to an insurer, or 0 if otherwise. Organization is a dummy variable that is equal to 1 if an insurer is a stock firm, or 0 if otherwise. Size the natural logarithm of total assets. Underwriting Leverage is the net premiums written divided by insurer’s equity/surplus. Financial Leverage is the insurer’s equity/surplus divided by total assets. RBC is the NAIC RBC ratio that is equal to adjusted capital divided by authorized control level risk-based capital. Group is a dummy variable that is equal to 1 if the insurer is a group member or 0 if otherwise. P-value is in parenthesis.

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<th>Panel A: Total sample</th>
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<th>Max</th>
<th>Min</th>
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Panel B: Comparison of issuers and non-issuers

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<td>Group</td>
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<td>-0.20</td>
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</table>

***Significant at the 0.01 level
** Significant at the 0.05 level
* Significant at the 0.10 level

Observation Num 45 1641
Table 2: Regression estimation of effects of firm characteristics on the surplus notes issuance

The estimates of Tobit and Cragg model are shown. Two estimation methods are used: Tobit and Cragg models. The null hypothesis of model specification test is that the coefficients for participation and volume decisions are not systematically different. Dependent variable is surplus notes, which is equal to surplus note issuance value scaled by total assets. Independent variables include: Reserve Development is the two-year reserve development divided by insurers’ equity/surplus. BestRating 2 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of A or A- to an insurer, or 0 if otherwise. BestRating 3 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of B++ or B+ to an insurer, or 0 if otherwise. BestRating 4 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of B or B- to an insurer, or 0 if otherwise. BestRating 5 is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of C++ or lower to an insurer, or 0 if otherwise. BestRating NR is a dummy variable that is equal to 1 if the A.M. Best assigned a financial strength rating of NR to an insurer, or 0 if otherwise. Organization is a dummy variable that is equal to 1 if an insurer is a stock firm, or 0 if otherwise. Size the natural logarithm of total assets. Underwriting Leverage is the net premiums written divided by insurer’s equity/surplus. Financial Leverage is the insurer’s equity/surplus divided by total assets. RBC is the NAIC RBC ratio that is equal to adjusted capital divided by authorized control level risk-based capital. Group is a dummy variable that is equal to 1 if the insurer is a group member or 0 if otherwise. Chi-square value is in the square brackets. P-value is in the parenthesis.

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<tr>
<th>Exp Sign</th>
<th>Tobit Model Type I</th>
<th>Cragg Model</th>
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<tr>
<td>Intercept</td>
<td>-0.5015 [-11.13]***</td>
<td>-4.0767 [-4.068]***</td>
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<td>Reserve Development</td>
<td>+ -0.0444 [1.18]</td>
<td>-0.3377 [-1.099]</td>
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<tr>
<td>BestRating 2</td>
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<td>1.2434 (2.820)***</td>
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<td>BestRating 5</td>
<td>+ 0.1540 [2.71]***</td>
<td>1.2572 (2.051)***</td>
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<td>BestRating NR</td>
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<td>1.3263 (2.580)***</td>
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<td>Organization</td>
<td>- -0.1241 [20.82]***</td>
<td>-0.9148 (-5.994)***</td>
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<tr>
<td>Size</td>
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<td>0.1454 (2.801)***</td>
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<td>+ 0.005 [0.11]</td>
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<td>Financial Leverage</td>
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<td>0.0782 (0.118)</td>
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<td>RBC</td>
<td>- -0.0055 [2.20]</td>
<td>-0.0462 (-1.769)*</td>
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<tr>
<td>Group</td>
<td>+ 0.0215 [0.85]</td>
<td>0.1261 (0.732)</td>
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<td>/ /</td>
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