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An Analysis of Securitization in the Insurance Industry

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ABSTRACT

This article analyzes the benefits and costs of securitization in the insurance industry and explains why securitization has not been more successful in the industry. The analysis suggests that these transactions are primarily motivated by tax and regulatory considerations and by the pursuit of capital at competitive costs. However, the prospects of securitization in the insurance industry do not appear promising because (1) it is costly to transform unstable cash flows from insurance products into fixed-income securities, (2) regulations do not allow insurers to take the securitized assets or liabilities off the insurer's balance sheet, and (3) insurers have little need for using securitization to diversify asset portfolios. The prospects may improve if the regulatory and technological environments become more favorable.

Introduction

Securitization is a process by which claims to cash flows from illiquid assets, such as car loans, mortgages, receivables, and leases, are transformed into tradeable securities. The technology was introduced by Bank of America in 1977 and has been popularized through the issuance of mortgage-backed securities, which had a total volume of over $1 trillion outstanding in 1992. Securities backed by other assets also grew dramatically in the 1980s: from $1.2 billion in 1985 to $26 billion in 1988 (Bryan, 1989).

The growing significance of securitization to banks and other financial services firms has been attributed to several factors that fall into two major categories. First, sale of mortgages through securitization is a form of regulatory arbitrage (Pavel, 1986; Greenbaum and Thakor, 1987; Pavel and Phillis,

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1987; Kopff and Lent, 1988).[1] Securitization allows banking institutions to sell mortgages in capital markets and thereby frees up banks' capital for more lending. As a result, banks are able to originate loans (to earn fees) without permanently funding them. Second, securitization enables banks to sell mortgages at competitive prices and to redeploy the sale proceeds in assets, which allows more effective management of interest rate risk and better diversification of asset portfolios (Kopff and Lent, 1988, and Harvey, 1991).

Although the amount of securitization is tremendous in banking and some other parts of the financial sector, it is rare in the insurance industry. Indeed, we have been able to identify only a few transactions: Prudential's sale of policyholder loans (PHLs), Cananwill's sale of premium loans, and the "sales" of premiums (with no securities issued) by General American Life and Monarch Capital. These transactions are used to analyze the benefits, costs, and issues of securitization unique to the insurance industry and to explain why securitization has not grown in the industry. The analysis suggests that these transactions are primarily motivated by tax and regulatory considerations and by the pursuit of capital at competitive costs. However, the prospect of securitization in the industry is not promising because (1) it is costly to transform unstable cash flows from insurance products into fixed-income securities, (2) regulations do not allow insurers to take the securitized assets or liabilities off the insurer's balance sheet, and (3) insurers have little demand for using securitization to diversify asset portfolios.

The Securitization Process

In a securitization transaction, at least four parties are involved: borrowers, originators (or sellers of assets), buyers of the assets, and investors in securities backed by the assets. The buyer can be a special purpose corporation (SPC) or a grantor trust, established solely to purchase assets and to issue securities against the assets to investors. In this way, the underlying assets are isolated from the originators' other assets and liabilities. The originators usually act (and are compensated) as servicers of the sold assets for collecting and distributing interest and principal payments.

An asset-backed security (ABS) can be structured as a pass-through or a pay-through. A pass-through structure features equity financing with a trust passing interest and principal payments from the original borrowers to ABS investors. A pay-through transaction, however, raises capital by issuing both bonds and stocks, allowing active management of cash flows from the underlying assets to provide bondholders with stable cash flows. Guaranteed investment contracts (GICs), issued by banks or insurers, are commonly used for stabilizing cash flows by guaranteeing the rate of return on unscheduled principal repayments.

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[1] Donahoo and Shaffer (1991) show that securitization decisions are influenced by capital requirements only in limited conditions. However, once a bank has engaged in securitization, the level of securitization activities is sensitive to capital requirements.

To improve their marketability, most ABS issues have credit enhancement to protect investors against normal losses on the underlying assets.[2] Greenbaum and Thakor (1987) purport that the originator possesses sufficient information about the borrower's quality to design an appropriate schedule of guarantee. This may be one reason why many ABS issues are guaranteed directly or indirectly by originators. Since investors prefer bonds with a fixed payment schedule (holding other factors, such as expected return, constant), many pay-through bonds (e.g., collateralized mortgage obligations) are structured into several "tranches" to provide more predictable cash flows and maturities.

In structuring a securitized transaction, the originator needs to decide whether to structure it as a sale of assets or as a loan from investors. For regulatory purposes, the assets are considered sold if the originator transfers to the buyer substantial "incidents" of ownership of the assets, which include the risks and benefits of owning the assets. If the assets are sold without recourse, the risks and benefits of owning the assets are entirely transferred to the buyer.[3] If some risks and benefits are retained by the originator, depending on the magnitudes of the retention, the transaction may be considered a loan from investors (Adelman and Lorence, 1989).

Sales recognition is important for two reasons. First, it allows realization of gain or loss for tax purposes. This is particularly critical for transactions aimed at realizing book loss of assets, such as Prudential's sale of policyholder loans. Second, it allows removal of the assets from the originator's balance sheet, and that removal frees up the originator's equity capital to support more lending.

Background of the Two Securitized Transactions

In 1990, Cananwill sold $270 million of insurance premium loans to Reliance Premium Credit Corporation, an SPC established to purchase the premium loans, against which commercial papers were issued. Insurance premium loans are loans taken out by individuals and businesses to pay for insurance premiums. The size of markets for such loans was about $10 to 15 billion as of April 1990 (Moody's Investors Service, 1990). With credit support from Fuji Bank, Ltd., and Barclays Bank, the resulting commercial paper received a Prime-1 rating from Moody's.

The Prudential Insurance Company of America securitized $619 million worth of PHLs in 1988. PHLs are the loans that policyholders take out against the cash value of their policies. Prudential sold the PHLs to an SPC, which financed the purchase by simultaneously issuing $10.8 million of equity and $445.6 million of bonds. With guaranteed investment contracts (issued by

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[2] Credit enhancement takes one or a combination of the following forms: (1) a letter of credit issued by a bank, (2) a surety bond issued by an insurer, (3) reserve accounts established to collect the excess cash flows (the gross cash flows from the underlying assets minus the coupon payments to investors and servicing fees), and (4) guarantee by the originator.

[3] Since most receivables are sold with recourse, the Internal Revenue Service agrees that a third-party guarantee or the seller's direct guarantee qualifies sales of receivables with recourse as true sales.

Swiss Bank Corporation) and reserve funds set up to stabilize cash flows, the bonds were rated AAA by Standard & Poor's.

The Prudential transaction also features tranching. Based on assumptions of mortality rate, lapse rate, and repayment decrements, Prudential used the Monte Carlo simulation model to estimate cash flows from the policyholder loans. The cash flows are then grouped so that each group's cash flows resemble those of a fixed-rate bond. The resulting products are six tranches of bonds with coupon rates and average maturities similar to those of Treasury bonds, as shown in Table 1.[4]

Table 1
Characteristics of the Bonds Backed by Prudential's Policyholder Loans and Estimated Tax Consequences

Bond Class	*Initial Principal ($)*	*Expected Life*	*Tax Coupon Rate (%)*	*Shield from Loss ($)*	*Estimated Increased Tax from Higher Returns ($)*	*Estimated Net Tax Effect ($)*
A-1	80,814,755	1.02	8.50	879,554	2,052,666	(1,173,112)
A-2	70,712,911	3.10	9.25	2,961,754	5,398,248	(2,436,494)
A-3	36,366,640	5.20	9.25	2,666,767	4,267,948	(1,601,180)
A-4	149,507,297	10.58	9.25	24,957,179	28,921,668	(3,964,490)
A-5	105,059,182	21.53	9.25	45,374,699	28,459,656	16,915,042
A-6	3,180,060	33.61	9.25	2,843,896	960,371	1,883,524
Total	445,640,845			79,683,850	70,060,558	9,623,292

Note: Estimates are based on the assumption that the sale proceeds of each class of bonds are invested to earn the same rate as the coupon rate. Also assumed are a 32 percent marginal tax rate and 5 percent policyholder loan contractual rate.

Potential Benefits of Securitization in the Insurance Industry

In general, securitization benefits borrowers by enhancing capital supply at competitive costs, it benefits investors by broadening the spectrum of investment options, and it benefits originators by generating underwriting fees and trading commissions.[5] The benefits to originators that are unique to the insurance industry are the focus of the following analysis.

Surplus Enhancement at Competitive Costs and Gains from Specialization

Pavel and Phillis (1987) empirically show that regulatory taxes have an important impact on a bank's decision to sell loans. Similar regulatory taxes (including surplus and reserve requirements and premiums paid to guaranty

[4] Principal repayments, if any, are determined by the trustee every quarter according to cash on hand. If there are principal repayments, investors of tranche-1 bonds will receive them first. After the tranche-1 investors are paid off, the tranche-2 investors are next in line to receive principal repayments.

[5] According to Bryan (1989), 40 to 50 percent of Salomon Brother's and First Boston's earnings in the late 1980s were from underwriting and trading mortgage-backed securities.

funds) are imposed on insurers, and they can be avoided, in theory, with sales of assets and liabilities through securitization. Shante (1989) and Agostino and Cosgrove (1990) suggest that sales of loadings of renewal premiums (through securitization) can improve surplus if the transaction is structured without recourse. Since loadings are the part of premiums not needed to fund statutory reserves, sales of loadings will not affect the insurer's statutory liability but can enhance its statutory surplus if the sales proceeds can be recorded as assets. This suggestion is based on the Financial Accounting Standards Board's statement number 77, which provides some guidelines for the sale of receivables. Shante (1989) estimates that surplus relief from securitizing loadings of renewal premiums or renewal premiums costs about 2 to 4 percent less than that from reinsurance. Further, Shante (1989) suggested that the after-tax cost of surplus raised from securitization of loadings of renewal premiums is lower than the cost of surplus relief achieved by reinsurance transaction because of the time value of taxes. Specifically, the securitization of loadings could be treated as a financing for tax purposes so that the proceeds received from securitization are taxed when the loadings are collected. The timing for the loadings being collected should be in the distant future because these are the loadings of renewal premiums. On the other hand, the allowances from reinsurance are treated as miscellaneous income and thus are taxed when the allowances are received. Moreover, the surplus relief can be achieved only when reinsurance transactions are performed now.

In 1988, General American Life "sold" a part of its renewal premiums to Citicorp. In 1987, Monarch Capital, the parent of Monarch Life Insurance Company, "sold" certain deferred sales charges on single premium variable life products to a syndicate of nine commercial banks. Neither company was allowed to treat its transaction as a sale of assets and both were required to set up reserves. Consequently, no surplus relief resulted.[6] Such regulatory conservatism may be one reason that similar transactions have not been seen since. Other reasons could be the lack of expertise in such transactions and the costs of securitizing uncertain cash flows such as renewal premiums.

The inability to gain surplus relief at lower costs through securitization reduces specialization. Insurers with comparative advantages in originating and servicing insurance policies are unable to specialize in these two areas without funding the policies (with the required surplus). If, however, regulatory and technological changes become favorable to securitization, insurers (particularly mutual insurers because of their inability to raise capital in financial markets) with low expense ratios will benefit from securitization by specializing in originating and servicing policies. For example, Cananwill (Reliance Insurance Company's subsidiary), not subject to insurance regulations, was able to originate and service more premium loans to earn fees by "churning" over the sale proceeds from securitized premium loans. Property-liability insurers, who often

[6] The General American and Monarch Capital transactions were private placements, so no detailed information is available.

suffer from cycles of hard and soft markets partially due to availability of capital, will also benefit from securitization (see Winter, 1988, and Cummins and Danzon, 1992). For borrowers, securitization enhances the availability of premium loans, which are priced on the risk of the future cash flows accruing to the lender, rather than on the risk of the borrower (which bank loans for similar purposes normally use).

Liquidity

Securitization creates liquidity in two ways. First, sales of the securitized assets generate liquid assets (cash) for the originator. Second, securitization converts illiquid assets into high-grade securities through tranching and credit enhancing. The high credit rating enhances the marketability of the securitized assets and thus increases the value of the underlying assets, as in the Cananwill and Prudential cases. Prudential, however, may not have received competitive prices for its PHLs because the resulting securities were privately placed and not traded in the secondary markets.

Tax Savings

The major benefit to Prudential is tax savings, which come from two sources: the tax shelter from realizing the book loss of PHLs and the savings in equity tax for mutual insurers.

Tax shelter from realization of book loss of PHLs. By Prudential's estimation, the tax shelter amounts to the product of its marginal tax rate (about 32 percent) and the realized loss. But that estimation accounts for only the one-time tax shelter from the realized book loss. It fails to take into account the higher tax liabilities in the future that result from the higher expected returns on the redeployed sale proceeds. The true tax savings are the net of the two opposite effects on Prudential's tax liabilities.

After the PHLs sale, Prudential is liable for interest on the sold PHLs if the borrowing policyholders elect not to pay it. Thus, if Prudential is assumed to have no bankruptcy risk, the securitized PHLs are risk free to the SPC. Ignoring transaction costs, the sale proceeds are equal to the present value of the cash flows accruing to the SPC, discounted at the risk-free rate (r_f).

Assume that the tax shelter from the PHLs sale is taken at present and is immediately distributed to the shareholders as dividends.[7] Let h be the face value of the PHLs earning a contractual rate of r, and let T be the insurer's marginal tax rate. Assume that the sale proceeds (or market values) of one-year and perpetual PHLs, denoted by k' and k, respectively, are redeployed to earn an expected rate of E(R). It is shown in the Appendix that the net tax consequence from the sale of one-year PHLs is positive if the sale proceeds are invested in the risk-free asset but negative if the proceeds are invested in risky

[7] This assumption does not alter the main results of this study, but greatly simplifies the analysis.

assets with a sufficiently high expected return.[8] The net tax consequence from the sale of perpetual PHLs is the tax shelter from the loss realization, T(h - k), regardless of how the sale proceeds are invested.[9]

Proposition 1. For a default-free insurer, the net tax effect of the sale of one-year PHLs is T(h -k') - PV[T(k'E(R) - hr)], which is positive for $E(R) < r_f/(1 + r - r_f)$ and nonpositive otherwise. The net tax benefit from the sale of perpetual PHLs is a positive T(h - k).

Table 1 presents Prudential's estimated tax shelter from the book loss and the present value of the increased tax liability from higher returns. At the marginal tax rate of 32 percent, the tax shelter is about $80 million, but the net benefit is only about $10 million. The net tax consequence is negative for bonds with average lives shorter than 11 years. The net tax benefit is highest for bonds with an average life of 33.61 years. Obviously, the longer the life of the bonds, the larger the tax benefit.

Savings in equity taxes. In general, policyholder dividends are tax deductible for stock and mutual insurers, with the deduction reduced for mutual insurers. Section 809 of the U.S. income tax law holds that part of the dividends paid to mutual insurers' policyholders are distributions to policyholders as owners. Therefore, the amount of dividend deduction should be reduced by an amount that is referred to in Section 809 as the "differential earnings amount," which is considered to be the distributions from a mutual insurer to its policyholders as owners and which is defined as the product of the average equity base and the differential earnings rate.

Prudential saves what the industry refers to as "equity tax" because the realized book loss from the sales of PHLs is translated into a decline of book equity by the same amount. This decline in book equity reduces Prudential's differential earnings amount and thus its equity tax.[10]

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[8] No net benefit will result if the tax shelter is taken at the end of the period. To illustrate the net tax consequence numerically, suppose the book value of the PHLs, earning a contractual rate of 5 percent, is $100. The market value of the one-year PHLs, at the risk-free rate of 10 percent, is $95.45 ($105/1.1). The tax shelter from the capital loss at a 32 percent tax rate is $1.45. The proceeds are subsequently invested to earn 10 percent. At the end of the period, the extra tax liability is ($95.45 x 0.1 - $5.0) x 0.32 = $1.45, the present value of which partially offsets the tax shelter of the capital loss taken at the beginning of the period. If the proceeds are invested in risky assets with an expected return of 15 percent, the present value of the expected extra tax liability becomes $95.45 x 0.15 x 0.32/1.15 - $5 x 0.32/1.1 = $2.53, which more than offsets the tax shelter of $1.45 taken at present.

[9] Assume again the book value of the PHLs earning 5 percent is $100. The market value at the risk-free rate of 10 percent is $50 ($5/0.1). The capital loss tax shelter amounts to ($100 - $50) x 0.32 = $16 at a 32 percent tax rate. The dollar return on the investment of the sale proceeds at 10 percent is $5 ($50 x 0.1). Therefore, no extra tax liability will be incurred if the proceeds are invested at the risk-free rate.

[10] Based on the assumptions in Table 1, Prudential's capital loss was about $250 million. Using the simple average method, Prudential's average equity base was reduced by $125 million (half of $250 million). If the differential earnings rate is 5 percent, then the differential earnings amount was reduced by about $6.25 million ($125 million x 5 percent). Prudential's savings in equity tax was simply the product of the reduction in the differential earnings amount and the marginal tax rate; that is, $6.25 million x 0.32 = $2 million.

Potential Costs and Issues of Securitization in the Insurance Industry

Surplus Drain

Sales of assets with market values lower than book values result in a lower equity-to-asset ratio.[11] This can be costly if capital requirements or optimal capital structure concerns induce the insurer to raise additional capital. For example, after realizing the book loss of the sold PHLs, Prudential raised capital to maintain its original book equity-to-asset ratio.[12] Thus, while the realization of book loss creates a tax shelter, it also generates the potential need for new equity capital.

Adverse Selection

An adverse selection problem could result from securitization. Good risks would be securitized and sold off, and poor risks would be left on the insurer's books and insured by guaranty funds for a flat premium. This adverse selection might shift poor risks from insurers who securitize to other insurers, policyholders, or taxpayers. The risk-based capital requirements, however, would curtail such adverse selection.

Loss of the Right of Offset

Insurers are usually granted the right of offset when PHLs are carried on their books. This right allows insurers, upon bankruptcy, to buy back PHLs (from the SPC) and use them to offset the policyholders' gross claims before those of other creditors. This right could be repealed by insurance commissioners or courts if PHLs are sold. If so, the SPC would lose its priority standing in a bankruptcy proceeding, making PHLs risky to the SPC.[13] This was one uncertainty that Prudential faced, the result of which may have been a lower price for the PHL-backed securities. The right of offset is merely one of the many complex provisions that need to be addressed in securitizing insurers' assets and liabilities. This complexity may be a reason securitization is rare in the insurance industry.

Transaction Costs and Credit Enhancement

Securitization is a complex process that incurs underwriting, issuing, and credit enhancement costs. Among these costs, credit enhancement costs are the most significant for securitizing insurance products, because a certain degree of cash-flow engineering is necessary to securitize complex insurance products, assets, or liabilities.

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[11] For equity ratio smaller than one, which is true for all insurers, deducting the same amount from the equity value and from the asset value yields a lower ratio.

[12] This was confirmed in a telephone conversation by a principal participant of the Prudential transaction.

[13] Although not in Prudential's securitized transaction, credit enhancing measures could be structured at a cost to shield the SPC from the effect of Prudential's loss of the right of offset.

Cananwill's securitized premium loans have low default risk, short maturities, and rather stable cash flows. Therefore, the transaction's credit enhancement structure is straightforward: guarantees from Barclays Bank and Fuji Bank. PHLs are almost default free but have very uncertain cash flows because they lack stated maturities and because borrowing policyholders have no obligation to pay interest or to pay back the principal in part or in full. Consequently, extensive cash-flow engineering is required to securitize PHLs into fixed-coupon bonds. Based on cash flows from Prudential's PHLs, six tranches of bonds were issued, and several reserve funds were set up to stabilize cash flows to bondholders. Both measures are costly. Credit enhancement for securitized renewal premiums would be even more costly because of the mortality and lapse risks of the underlying policies and thus of renewal premiums. From the perspective of costs and expertise involved in a transaction, insurance products or assets with more stable cash flows are more likely to be securitized, *ceteris paribus*.

Prospect of Securitization in the Insurance Industry

The insurance industry can potentially benefit from securitization through tax savings, surplus enhancement at competitive costs, gains from specialization, and enhanced liquidity. However, several factors either prevent these benefits from being fully realized or offset some attainable benefits.

First, the costs of securitization in the insurance industry appear to be higher than those in the banking industry, primarily because of the higher costs of the credit enhancement needed to transform highly uncertain cash flows from insurance products or assets/liabilities into securities.

Second, insurers' need for using securitization to diversify asset portfolios (a major consideration for banks) is insignificant, because only about 22.3 percent of assets of average life insurers are not marketable securities (American Council of Life Insurance). However, insurers often need to diversify liability portfolios, which is conventionally accomplished through reinsurance. Securitization of liabilities can become a viable alternative to reinsurance if regulations and technological advances make securitization of such complex cash flows profitable for insurers and make the resulting securities acceptable to investors.

Third, regulatory conservatism prohibits insurers from recording the proceeds of selling renewal premiums or loadings as assets without setting up reserve accounts. Consequently, insurers, such as General American Life and Monarch Capital, are unable to use securitization to enhance surplus at competitive costs; insurers with comparative advantages in originating and servicing policies cannot specialize in these two areas without permanent funding and guaranteeing the policies.

It is perhaps for these reasons that securitization is still rare in the insurance industry. However, the prospects can change if and when regulatory and technological environments become favorable to securitization.

Appendix

Proof of Proposition 1

The present values of tax consequences involved in a PHLs sale are summarized as follows:

	Single Period PHLs	Perpetual PHLs
Book Value of PHLs	h	h
Market Value of PHLs	$k' = h(1 + r)/(1 + r_f)$	$k = hr/r_f$
A. Tax Shield from Capital Loss Taken at Present	$T(h - k')$	$T(h - k)$
B. Expected Present Value of Increased Taxes from Higher Return	$PV[T(k'E(R) - hr)]$	$PV[T(kE(R) - hr)]$ $= T[kE(R)/E(R) - hr/r_f]$ $= 0$
Net Tax Benefit = A - B	$TN[E(R)(r_f-r)-(E(R)-r_f)]$	$T(h - k)$

Note that, in the above summary, $N = h/[(1 + r_f)(1 + E(R))] > 0$. In the case of single-period PHLs, the net tax consequence is positive if $E(R) < r_f/(1 + r - r_f)$; it is negative if $E(R) > r_f/(1 + r - r_f)$. Clearly, the net tax consequence is positive if the sale proceeds are invested to earn the risk-free rate. For perpetual PHLs, the net tax benefit is the tax shield from capital loss taken at present.■

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