

Securitization: Current Trends and Issues

1. Introduction

This paper looks at some of the current trends towards the securitization of bank lending. In doing so it will examine the generic types of securitization, the advantages and disadvantages of securitization as well as addressing questions relating to the limits of the securitization process.

In Section II we will look at the generic types of securitization and their size and scope. In Section III we examine some of the major advantages and disadvantages of securitization. Finally, Section IV will look at future prospects for securitization and address the question of the limits of the securitization process.

2. Types of Securitization

In examining the generic types of securitization a distinction should be made between its most basic form, which is loan selling, and three other forms: the pass-thru security, the pay-thru security and the loan (asset) backed security. Loan selling, as the name implies, concerns selling whole or portions of loans originated by a bank to outside parties (often other banks). While no new security as such is created, this process may still be viewed as one of securitization since the asset (loan) is traded (sold) on a secondary market in a fashion similar to other marketable securities like bonds and equities. By comparison securitization of loans through the

creation of pass-thru, pay-thru and loan (asset) backed securities actually involves the innovation of new financial instruments (or securities) which are also tradable. Implicitly these latter forms of securitization may be viewed as higher forms of securitization than the most primitive form - loan selling.

(i) Loan Selling

Loan selling involves the removal of assets from a bank's balance-sheet by selling loans to outside parties without recourse [1]. The absence of re-course means that the selling bank bears no contingent liability should the loans sold deteriorate in quality and eventually default. As such this means that either (i) only the best loans can be sold or else (ii) that buyers will impound a full discount into the price of the loan to account for bearing this default risk. In the U.S. there has been a surge of domestic loan sales in recent years mostly involving short-term commercial and industrial loans (C and I loans). Recent figures, by BECKETTI and MORRIS (1987), show that for the largest 20 banks in the U.S. the ratio of loans sold to assets rose from 1.5% (\$12 billion) in the second quarter of 1983 to 9.1% (\$82 billion) in the first quarter of 1987. While, for all U.S. banks, the respective growth rate was from 1.2% (\$27 billion) to 4.0% (\$115 billion). The second major area of growth in loan sales has been the secondary market in developing country (LDC) debt. From an initial quantity of \$1.5 billion in

1982-83 this market has grown to \$15 billion in 1987 (SALOMON BROTHERS, Report June 17th 1988). Moreover, a market is made for the loans of 28 different countries, see SALOMON BROTHERS, International Loan Trading, June 9th 1988. There are three major types of transaction in the secondary market for LDC loans. The first are loan for cash transactions which are primarily used as an exit vehicle for smaller banks from the international loan market. Here discounts (based on bid prices) vary from \$91.50, for every \$100 of face value of loan for Algeria, to \$2.00 for Nicaragua. The second is a swap transaction whereby larger banks rearrange the composition of their LDC loan portfolios by swapping the loan of one LDC for another - with dealers, such as SALOMONS BROTHERS quoting a swap index to ease trades. Finally non-bank buyers may exist in the cash for loan market primarily to enable them to participate in debt-for-equity swap programs provided by countries such as Chile, Ecuador, Venezuela and Jamaica. Here a non-bank investor/corporation buys a hard currency LDC loan in the secondary market at a discount and uses the proceeds to convert into the domestic currency of the debtor (e.g. pesos), and then uses these proceeds to undertake real investment in the debtor country.

(ii) Pass-thru Securities

The largest area of the loan market to have been securitized in the U.S. is the home-loan (domestic mortgage) market. By far the largest issuer of mortgage backed securities is the U.S. Government National Mortgage Association (GNMA) or "Ginnie Mae". At the end of 1987 well over \$600 billion of domestic mortgages had been securitized through the issuance of GNMA pass-thru securities. A GNMA pass-thru security is a pro-rata claim on the principal and interest payments arising from a pool of domestic mortgage loans. The process starts with a bank originating a pool of new home mortgages to low income individuals or Veterans backed by Federal Housing Administration (FHA) or veterans

Administration (VA) default risk guarantees. Thus the pool of mortgages is free of credit risk. This pool is then placed in an outside trust by the bank (i.e. removed from its balance-sheet) and pro-rata claims on the pool of future interest and principal payments are sold to outside investors. In general the originating bank will service the pool, collecting mortgage payments and for a fee passing the interest and principal payments thru to the outside investors. GNMA plays a role here by guaranteeing the prompt timing of these (monthly) payments to investors. Thus, GNMA guarantees the timeliness of payments from mortgage backed pools.

There are two other important aspects to note with respect to these securities. The first is that while two sources of risk are eliminated (credit and timing risk) a third, prepayment risk, remains. Prepayment risk arises because the holders' of the underlying mortgages in the pool always have the option or incentive (subject to a penalty payment) to pre-pay a mortgage early if mortgage rates should fall [2]. The pass-thru investor gains from these prepayments in that cash flows (principal) is received earlier (which is a present-value gain) but can lose because of having to reinvest these proceeds at lower interest rates in the future as well as receiving lower interest payments in absolute dollar terms (because of the earlier repayment of principal).

Second, the creation of these pass-thru securities removes the mortgage loans from the bank's balance-sheet (i.e. they are off-balance sheet) with the bank acting more like a "broker" than a traditional asset-transforming intermediary.

In recent years other loans have been securitized. Most importantly car-loans, credit card receivables and recreational vehicle loans. The major difference between these pass-thru securities and those in the mortgage market is that the amounts outstanding are very small, largely because of the fact that these loans are not insured by any external regulatory agency such as the FHA/VA for credit risk or GNMA for timing risk. To overcome this risk

problem these pools have to be insured by credible outside private insurance firms in a fashion similar to the use of private credit insurance guarantees for local (municipal) bonds in the U.S.

(iii) Pay-thru Securities

Pay-thru securities were developed partly to ameliorate the prepayment risk problem of pass-thru securities. As with pass-thru securities, the major types of loan underlying these securities are mortgages. First introduced in 1983, mortgage pass-thru's outstanding now exceed \$150 billion and have proved to be remarkably attractive to outside investors. Pay-thru's reduce prepayment risk by dividing the bonds issued into different expected maturity/duration tranches (or classes). Moreover, these bonds are backed by the cash-flows from specific assets on the bank's balance-sheet. Thus, we have another important difference between pay-thru's and pass-thru's. Pay-thru's, unlike pass-thru's, remain on the bank's balance-sheet as liabilities. As the name implies the interest and principal repayments on the dedicated balance-sheet assets are "payed-thru" to the bond holders. Thus the holders of these bonds have senior claims to a specific group of assets (returns) in the bank's balance-sheet. This absolute seniority acts as protection against bank-failure while the credit risk (default on the mortgage pool) can be privately insured against by the issuer. To see how prepayment risk is reduced consider an issue of pay-thru securities that have a short-term maturity tranche and a long-term maturity tranche. As interest and principal repayments on mortgages are received these dollars are first used to pay the guaranteed coupon on the first- and second-tranche of bonds [3], any remaining funds are then used towards paying-off the principal on the first tranche of bonds. In particular, no payments are set aside to paying-off the second-group of bonds until the first tranche has been fully paid-off. Thus the second tranche of bonds has some "prepayment protection" in that the first group of bonds would have to be completely paid-off

before any "early" prepayments of mortgage principal impact on second-tranche returns.

(iv) Loan (Asset)-Backed Securities

With both pass thru's and pay-thru's there is a direct link between the cash-flows received on the underlying assets and the returns investors get from holding these securities. Loan-backed securities, like pay-thru's, appear as a liability on bank balance-sheets, however, unlike pay-thru's their link to the asset-side of the balance-sheet is less direct. Rather than the cash-flows on any group of assets or loans being dedicated to paying-off these securities (as in the pass-thru and pay-thru cases), a group of assets are set aside to act as collateral backing to the issued bonds. That is, loan-backed bonds have characteristics very similar to ordinary bonds in that they have regular coupon payments with a final payment of principal on maturity - with the exception that these payments are backed by an absolute senior claim or a group of bank assets should the bank fail to keep up with regular interest (coupon) payments on these bonds. To ensure that bank default risk is minimal, these loan-backed securities are often heavily over collateralized with a trustee appointed to monitor the size, quality and market-value of such collateral [4]. If the market-value of collateral should fall the bank is usually required to add to the group of assets collateralizing the bond issue. As with pass-thru's and pay-thru's - mortgage loans have been the major asset underlying these bonds but in recent years small business loans, receivables and even junk-bonds have been securitized in this manner.

So far the trend towards securitization described above has been primarily U.S. based (with the exception of foreign bank participation in the secondary market for international loans). However, it is arguable that a fifth and additional form of securitization has taken place in the euro-dollar/euro-loan markets. Specifically, since the beginnings of the international debt crisis in August 1982

the composition of international debt has undergone a major transformation (see Bank for International Settlements, Quarterly Reports, various issues) with a very rapid growth in short-term debt instruments such as note issuance facilities (NIF's) and revolving underwriting facilities (RUF's) taking a larger and larger share of the international debt market at the expense of loans. Similar trends have been observed at the medium and long-term level with rapid growth of euro-bond finance at the expense of euro-credits.

Given these trends, the question arises as to what are the relative advantages and disadvantages of securitization to banks?

3. Advantages and Disadvantages of Securitization [5]

3.1 Advantages

(i) Gap Management

In general, banks and other financial intermediaries have longer durations of assets than liabilities. This duration mismatch exposes them to interest rate risk whenever rates are volatile. Specifically, if the duration of a bank's assets is longer than its liabilities, rising interest rates will reduce the net worth of the bank and could threaten its capital adequacy position. One obvious way to manage this duration mismatch is for the bank to either lengthen the duration of its liabilities or reduce the duration of its assets. However, such a wholesale rearrangement of the balance-sheet could be an extremely costly and lengthy process. Alternatively a bank may take a hedging position in financial futures, e.g. selling futures short, so that when interest rates rise, the fall in bank net worth on the balance-sheet is offset by profits on the futures contracts off-the-balance-sheet.

The potential to engage in securitization provides a further alternative to direct hedging or futures

contracts. Suppose a bank was to take some of its long-term mortgages off its books by issuing pass-thru securities and/or it were to sell some of its longer term commercial and industrial loans - then one would expect to see the duration of the bank's assets shorten to better match the duration of its liabilities.

(ii) Liquidity

In the absence of loan selling or pass-thru's a bank is forced to act as an asset-transformer i.e. originating and holding loans until maturity. The existence of secondary loan markets and pass-thru's allow the bank to adopt an alternative mode of financial intermediation, that of broker. In addition the existence of these forms of securitization lowers the costs of intermediation by allowing banks to adjust their portfolios at a faster (perhaps more optimal) speed as interest rates, deposit flows and other macro-economic variables change.

(iii) Investment banking/Underwriting

In the U.S. in particular, banks have faced restrictions on their investment banking activities. The Glass-Steagall Act of 1933 has, with the support of the Courts and the investment banking industry, limited their ability to issue corporate debt in forms other than commercial loans. In recent years there has been a very strong growth in the short-term commercial paper (debt) market. For example, BECKETTI and MORRIS (1987) show that the share of commercial paper in the composition of total short term debt of US non-financial corporations tripled from 4% in 1973 to 14% in 1986 (equal to \$82 billion) - with much of this growth at the expense of bank loans. While recently (June 1987) US banks finally gained some limited rights to underwrite commercial paper in separately capitalized affiliates, the total amount has been severely restricted as a percent of overall bank revenues and capital. It is therefore arguable (see BECKETTI

and MORRIS 1987) that loan sales are a form of loan underwriting that allow banks to continue to provide services to their best customers without holding all the risk on their books. Implicitly, that is, loan selling may be viewed as a form of underwriting competitive to the underwriting of commercial paper.

(iv) Regulatory Avoidance

In the case of loans sales and pass-thru's (though not pay-thru or asset (loan) backed securities) a bank removes assets from its books and shrinks the size of its balance-sheet. This has a number of advantages. First most countries impose minimum capital-asset (or adequacy) ratios on banks. Bankers, while accepting that capital plays an important role in guaranteeing the solvency of the bank, have long argued that capital ratios are usually set too high and that raising additional capital - through retained earnings or new equity issues - imposes a deadweight burden on their business. The ability to sell loans or originate pass-thru's provides bankers with an alternative (perhaps less costly) method of boosting their capital-asset ratios. Specially, rather than increasing capital (the numerator of the ratio) selling assets shrinks the denominator and has the same effect of boosting the reported capital-asset ratio to regulators. Indeed, the incentives to engage in securitization may well increase as the U.S., Japan and other OECD countries, move toward integrating their capital-asset ratio requirements by 1992. These new requirements will require a 4% primary capital ratio and a 8% secondary capital ratio (based on capital to risky-assets). Since these new ratios assess the riskiness of bank assets in terms of credit risk, and loans by definition have the highest credit risk rating, banks may be able to significantly ameliorate their capital burdens by securitizing loans.

In a similar fashion most countries impose non-interest bearing reserve ratios as a function of the size of a bank's deposit base. Again, by shrinking

the asset base by securitization - the average level of deposits will fall as will the average level of reserve "taxes" imposed by regulators on banks.

Finally, to the extent that deposit insurance premiums are levied on banks according to the size of their deposit-base (as in the U.S. and U.K. for example) rather than their risk, asset-securitization, by shrinking the balance-sheet, will reduce the size of deposit-insurance levies.

(v) Contract Inflexibility And Default

The substitution of securitization and bond-type contracts for loan-type contracts has certain potential advantages in risk-control. Bonds unlike loans are basically inflexible contracts. Specifically, in the case of loans (either domestic or international) if a borrower gets into difficulty there is invariably some recontracting and rescheduling of loan terms e.g. grace periods, tenor, fees, interest rates etc... The classic examples of this being the multi-year rescheduling agreements (MYRA's) reached between banks and LDC's. By contrast bond-holders tend to be more numerous and dispersed than banks' or bank syndicates, and it is far more difficult for bondholders to agree on rescheduling of bond-type contracts. In general, difficulties with repayment often lead to the debtor being put into default. Because the relative degree of inflexibility of bond contracts is well noted - bondholders are likely to be particularly concerned about the quality of the borrower ex ante so as to avoid costly defaults. That is, the use of bond contracts is more likely to result in cautious lending behaviour and screening out of high credit risks than when loan contracts are used. It is more than coincidence that access to the new securitized instruments in the international debt market (NIF's, RUF's, Euro-bonds) are available only to the highest quality debtors. Low quality debtors (LDC's etc...) are generally screened out and can only borrow in the international loan market (if at all).

(vi) New Source Of Funds

In the case of on-balance sheet forms of securitization such as asset (loan)-backed securities and pay-thru's these new liabilities increase the menu of choice in the bank's source of funds. That is, rather than relying on capital, deposits and borrowed funds to finance balance-sheet growth - these forms of securitization provide an additional source of growth. As a result, banks are better able to diversify their funds risk should there be problems in expanding their deposit base for example.

3.2 Disadvantages*(i) The Quality Risk Problem*

In general, only the best quality/low risk assets of banks can be securitized. Hence, it has been argued that this may have a negative effect on the average quality of bank assets and therefore on bank safety and soundness. Specifically, selling off or securitizing the best assets leaves the remaining bank loan portfolios bearing on average a higher level of default risk than before.

(ii) The Costs Of Private Insurance

In the case of GNMA securities, discussed in Section II, U.S. government agencies provide insurance against credit risk (the VA/FHA) and timing risk (the GNMA) [6]. This suggests that in the case of conventional private loans, private insurers need to provide guarantees against both types of risk. The higher the pre-insurance risk of default of a pool or type of loan and/or the more uncertainty there is about the ability of a bank to maintain the scheduled timing of payments the greater the insurance fees (and insurance burden) that have to be borne by the bank.

(iii) The Over Collateralization Problem

In the absence of any (or complete) insurance coverage as in the case of asset (loan) backed securities, the securities have to be over collateralized to ensure a "high" credit rating. For example, in a recent issue of asset (loan) backed securities by a Californian Savings and Loan, the assets securitized were its holdings of junk-bonds (low quality, high-yield bonds). To achieve an investment grade rating for these loan backed securities, the S and L had to back every \$100 of bonds issued with over \$180 (market-value) of junk-bond collateral; where these junk-bonds had to be issued by firms in at least 13 different industries (so as to ensure sufficient diversification). Moreover, the bond-trustee was charged with monitoring the market-value of the underlying collateral and with requiring the S and L to place additional collateral in trust should the market values of the existing junk bonds deteriorate. While loan-backed securities are attractive, in that they provide a new source of funds to finance assets such as junk-bonds - this over collateralization tends to tie up a portion of the bank's asset portfolio over the life of the security, thus making the bank less, not more, liquid unlike the case of loan sales and pass-thru's.

(iv) Marking The Balance-Sheet To Market

In most countries banks' report the book-values (historic values) of their loan portfolio to regulators and the public rather than their market values. Securitization, however, is a form of marking the book-value of a loan portfolio to market. In particular, the market value of different types of loan can readily be observed by analyzing the secondary market trading prices for such loans (in the case of loan sales) or securities (in the case of pass-thru's etc...). If market prices are such that they indicate the book-values of loans remaining on the bank's balance-sheet are inflated, regulators might require the values of these loans to be written down and additions to be made to loan reserves and bank equity

capital. Of course theoretically, marking a bank's balance-sheet to market is desirable since it reveals a bank's true economic position. However, bank's heavily loaded with LDC loans, for example, may view the likelihood of increased loan loss reserves and capital requirements as a negative outcome of the securitization process.

4. The Future of Securitization

The very growth of securitization in recent years suggests that for many bank's the advantages of securitization outstrip the disadvantages. Moreover, every type of loan: consumer, commercial, international, mortgage etc. has been securitized in some fashion or other. Nevertheless for some types of loan, such as LDC loans and commercial loans, we only tend to see them securitized in their most primitive form i.e. through loan sales whereas for other types of loan or asset most notably mortgages, we observe securitization in one of its more complete forms (pass-thru's etc.).

An interesting issue is whether we are likely to see loans, currently securitized through the most primitive form, eventually becoming fully securitized. For example, what are the chances of LDC debt becoming fully securitized especially as agencies such as the World Bank and IMF (see THE WORLD BANK, 1988) have often viewed this as desirable? To evaluate this possibility we have to look at both potential supply and demand sides of the market as well as considering the different generic forms of higher-level securitization.

On the supply side, banks could certainly package together pools of LDC loans either single-country-based or (to ensure diversification) multi-country-based. However, whether they are willing to do so would depend on the cost of issuing such loan-backed securities relative to the discounts that are currently available in the secondary market for LDC loans. Given the high degree of sovereign default risk for many of these LDC's, arranging

private credit-insurance for the pool of loans would either be impossible or extremely expensive. In particular, it is unclear that the insurance fees (including insurance loadings) would be less than required discounts in the secondary loan markets. This suggests that pass-thru type or pay-thru type securities might be very difficult and costly for banks to originate. Perhaps, the most likely form of "full" securitization would be of the asset (loan) backed security type. In particular, LDC loans have many of the attributes of "junk-bonds" discussed in the S and L example in Section III. This suggests that it might be feasible for a big international bank to gather a large enough, and well diversified enough, pool of LDC loans that with a sufficient degree of over collateralization would ensure an investment grade rating by bond rating agencies. However, the bank may well find it encumbered with the long-term burden of maintaining the market-value of the collateral in the pool. For example, the bond trustee, is likely to require the bank to add to the collateral pool whenever discounts on loans in the secondary market increase and/or the exchange rates on these loans change (assuming that these are not all denominated in the domestic currency).

On the demand side, these bonds might prove attractive to relatively low risk averse investors, i.e., those who already purchase junk-bonds, as well as bond mutual funds specializing in relatively high risk bonds. However, insurance funds and pension funds that are concerned about "prudent-man" and legal consequences, should these investments go bad, are unlikely to be interested.

Finally, it should be noted that in the case of potential issues of LDC pass-thru securities even if credit risk and timing risk were to be taken care of by private insurance these bonds would still face a form of "prepayment" risk. However, unlike mortgage loans this prepayment risk would likely take on a different character. In particular, as interest rates on LDC loans (assuming the loans in the pool are floating rate loans) rise debtor countries may have more difficulty repaying their loans and

MYRA's are likely to be arranged; so that the average duration of the pass-thru securities will be lengthened. This will have two conflicting effects on the value of the underlying securities in that the present value of the principal payments will decline but the present value of the stream of interest payments is likely to increase. By contrast if rates fall, and this is reflected in LDC loan rates in the pass-thru pool, it appears to be unlikely that LDC's (compared to mortgages) will seek to prepay their LDC loans early. In effect we might expect to see an asymmetry of response by LDC's (and loan pool cash-flows) to interest rate changes. Rising rates leading to a longer duration of the underlying securities while falling rates lead to little change in the duration [7]. In a sense, LDC pass-thru's would be exposed to a form of negative prepayment risk. This asymmetry in response, as well as the high probability of MYRA's having to be arranged, along with factors such as foreign exchange and sovereign risk would make such pools extremely difficult for investors to value.

These problems suggest that not all types of loans are fully securitizable without considerable engineering. What has been said above regarding LDC loans also applies to some extent at least to the full securitization of domestic commercial and industrial loans. Whether LDC loans and commercial loans are upgraded to a fully securitized status in the

future will depend as much on the demand-side factors discussed above as on the supply-side question of their relative attractiveness to banks.

Footnotes

- [1] If loans sales are made with recourse, regulators invariably require them to remain on the balance-sheet.
- [2] So as to refinance the mortgage at lower cost.
- [3] A third difference between pay-thru's and pass-thru is that the former also have guaranteed coupons. By comparison pass-thru's have no guaranteed coupon.
- [4] Moreover, over collateralization is often needed to achieve a high credit rating with bond-rating agencies such as Moody's and Sand P.
- [5] Elsewhere, C. PAVEL (1986) has discussed the advantages and disadvantages of securitization. She has also made many similar arguments to those discussed in this paper.
- [6] Or in the case of GNMA semi-governmental.
- [7] Moreover, any earlier payments of principal that lower duration are likely to be offset by lower relative interest payments compared to principal that lengthen duration.

References

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