The Importance of Data in International Structured Finance

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Introduction

One of the cornerstones of the development of a securitization market in international and emerging countries is the ability to aggregate, maintain and report reliable data and information about the transaction's collateral. Reliable reporting and transparency of information remain critical to the development of modern financial markets.

The World Bank estimates that transition economies will experience gross domestic product (GDP) growth of between 20% to 30% after developing a fully functioning real estate finance markets, and even greater gains after further development of modern financial markets. Having witnessed the impact of securitization on the US capital markets, international governments and financial institutions see the potential impact securitization might have in their efforts to raise funds for housing, and many are taking steps to introduce structured financing techniques into their markets. What many have yet to grasp is the critical role that data will play in whether their efforts succeed or fail.

The impact of securitization on the US consumer finance markets cannot be overstated. The technique of pooling financial assets and using them to back a security has completely transformed the cost structure of the US mortgage industry and changed it from a fragmented business conducted by local banks to a national industry dominated by non-bank consumer finance companies. Once limited to a relatively small subset of borrowers, the market now provides a wide variety of competitively priced mortgage products to borrowers across the entire credit spectrum. Perfected in the mortgage market, securitization has been adapted to finance practically any cash generating asset, including credit cards, auto loans, student loans, and commercial real estate, and it has made large impacts in those industries as well.

Securitization is traditionally defined as the pooling of assets and the issuance of securities backed by those assets. A better definition of securitization, however, is that it consists of the issuance of securities where repayment is engineered solely through the financial behavior of the particular assets. This definition portrays the important concept that securitization is not dependent on the expected financial behavior of the originator or the issuer, but solely on the assets.

This de-linking of the securitized transaction from the credit quality of the issuer is critical to understanding the power of securitization to issuers in international and emerging markets, particularly small and midsize financial institutions. As a direct result, it is possible for low-rated, or un-rated financial institutions to issue highly rated securitized transactions, allowing as an example, an un-rated issuer to finance its lending programs at triple-A spreads.

For these and other reasons, the use of securitization has been on the rise in many international and emerging markets. In countries such as Argentina, Hong Kong, and Korea, companies, particularly those without highly rated balance sheets, are viewing the securitization markets as a potential source of capital. At the same time, governments and housing finance agencies around the globe recognize that securitization may provide the key to unlocking the huge amounts of capital

The article is a publication of AGS Financial LLC. For more information contact:
AGS Financial LLC; 730 Fifth Avenue, New York, NY 10019
Phone: (212) 246-3632; Fax: (212) 246-3693; email: info@agsfinancial.com
Website: www.agsfinancial.com.

required to meet tremendous unmet demand for housing.

For the first time issuer, however, executing transactions, even when backed by superior collateral, is a very difficult task. Many potential issuers find that a successful transaction requires significant enhancements to their loan servicing, data processing and investor reporting capabilities in order to meet the international capital markets standards for data quality, timeliness, and transparency.

In order to appropriately analyze the underlying risks of a pool of assets, rating agencies and investors require three broad categories of current and historical data: loan performance data, prepayment data, and loan and collateral characteristics. The inability to provide data of sufficient depth and quality may not completely preclude an issuer's ability to securitize, but it will substantially diminish the potential benefits of securitization, since in the absence of good data, rating agencies will apply "worst case" performance assumptions to collateral pools, adding tremendously to the costs of the transaction.

Fortunately, the tools exist for emerging market lenders to set up programs that will be able to meet the rigorous data and reporting requirements demanded by the rating agencies and international capital markets. The experience of Banco Hipotecario in Argentina is a case in point. After substantially upgrading its master servicing capabilities,[1] the bank was able to issue the first investment grade rated, cross-border mortgage securitization originated from a non-investment grade rated sovereign in 1996. The deal proved to be the beginning of a successful program of investment grade MBS issued by the bank into the international capital markets.[2] As a result of securitization, BHN can finance its mortgage programs at interest rates significantly better than the double-B rated Argentine government, providing BHN a distinct competitive advantage.

Mortgage Credit Analysis

The ability of a securitization to shift the credit focus from the asset originator to the assets themselves is dependent upon two critical elements. The first is a legal structure that protects the investors' undivided interest in the collateral from the creditors of the originator even in the event of an originator bankruptcy. The second is the ability to determine, with some degree of accuracy, the likely future value of the collateral itself. It is this second point that this article is concerned with.

When conducting credit analysis of a pool of assets for securitization purposes, the goal is to determine the likelihood that bondholders will be repaid solely from collateral cash flow under different economic scenarios, ranging from highly favorable to highly distressed. The more stress an asset pool can endure while still covering bondholder principal and interest, the higher the rating assigned to the security. The ability of a security to survive defaults in the asset pool is generally a function of pool credit enhancement, whether in the form of overcollateralization, subordination, or a third party guarantee. The amount of credit enhancement necessary to achieve a given rating will vary from deal to deal, and is determined by the rating agencies, which conduct in depth analysis of the collateral.

[1] AGS Financial was engaged by Banco Hipotecario to oversee the development and implementation of new master servicing procedures to track remittances from more 40 primary servicers. Please refer to the AGS website at www.agsfinancial.com for a description of the engagement. For general information on the servicing function in international transactions, see the article "Asset Servicing in International Securitizations."

[2] BHN-IV, issued in 2000, received a rating of single-A.

In the US markets, analyzing the default and loss frequencies of asset pools has become something of a science. In the 30 years since the creation of the first MBS securities, the securitization market has tracked and analyzed a tremendous amount of information, which is readily available to investors and issuers. Numerous studies of this data have revealed trends outlining the relative risks indicated by individual borrower and loan characteristics, suggesting that the default rates of mortgage pools can be predicted with sufficient data. Some intuitive examples of these relationships include:

- Borrowers with a history of defaults are more likely to default in the future than borrowers with no history of defaults.
- Borrowers who occupy their home are less likely to default than borrowers who do not.
- Borrowers who make substantial down payments are less likely to default than borrowers who make low down payments.
- Borrowers are more likely to default on adjustable rate mortgages than on fixed rate mortgages.

Credit Default Modeling

The results of this analysis, in turn, have led to the development of increasingly sophisticated and accurate collateral performance models, which focus on the two key collateral related issues: losses arising from delinquencies and foreclosures, and the speed and timing of loan prepayments that will result in an acceleration of the repayment of the security.

The mortgage ratings criteria developed by the U.S rating agencies illustrates the importance of reliable performance data. Rating agency credit models utilize up to 400 data elements to develop credit enhancement criteria for MBS. This data is used by rating agencies and investors to model projected collateral performance under different loss scenarios, thus ensuring that credit enhancement can be sized appropriately to protect bondholders from loss.

The performance of Standard and Poor's MBS ratings has been remarkably stable. Over a 22-year period from 1978-1999, S&P provided credit ratings to 5,930 credit classes of residential MBS from over 3,683 private label, or non-US agency, transactions. During that period, there were 1,374 rating changes for high quality residential mortgage loans, consisting of 726 downgrades and 648 upgrades. 448 of the downgrades, however, were due to the lowered credit status of a third-party credit enhancer and not due to collateral performance. The remaining 278 downgrades were the result of the collateral performing below the original expectations[3]. The stability of these rating is a strong indicator of the reliability of mortgage performance expectations based on analysis of historical performance data.

Data Quality a Problem in Many Markets

Just as information has clearly been a catalyst for the development of the securitization markets in the US, it continues to be a significant limiting factor in many developing and emerging markets. The aggregation of reliable performance data is critical to the successful development of the international securitization markets, particularly since the majority of all securitizations issued world-wide are purchased by US investors, who have come to expect, and will demand, certain minimum data standards. Improving the quality of data and reporting is important even for issuers that have successfully issued securitizations, since any refinement in the ability to project losses is

[3] Standard and Poor's, performance of US RMBS Credit Ratings 1978-1999.

likely to result in less conservative loss assumptions on future transactions, significantly improving the efficiency of the financing structure and lowering the cost of issuance.

Through its engagements advising emerging market institutions, AGS has found that many potential first time issuers are limited in their efforts by a lack of reliable, standardized data. In many countries, lending practices have evolved at the institutional level, resulting in fragmented and non-standard documentation, terms, and definitions. These markets, generally lacking central databases or liquid secondary loan markets, have never required lenders to capture, track, and report standardized portfolio information. Lenders, originating for their own portfolios, capture and track origination and performance data to meet their own needs, using their own formats and conventions, which are often insufficient to meet the needs of international capital markets.

Local economic conditions and business culture also influence what types of data are deemed important, and what are not. In some cases this leads to the omission of data elements that would be considered critical for analysis in a secondary market environment. For example, in economies with a history of hyper inflation, the original principal balance of a loan becomes less relevant because the value of the loan erodes so quickly with the passage of time. More relevant in these environments is information relating to inflation indices and the anticipated dates payments will be received. Lenders in these markets may emphasize these more relevant data points and not even track the remaining balance of a loan.

Now, as more and more lenders in international and emerging markets hope to raise funds in the international capital markets, they must begin to adapt their information standards to meet the requirements of investors. In the securitization markets, this means being able to track and report collateral data that can be used for pool analysis. While the specific data points that are of critical importance will vary somewhat from market to market, in general there are three areas that should be of particular focus: historical performance data, prepayment information and loan specific information.

Performance Data

Historical performance data includes information about borrowers' payment histories, and delinquency resolution information. When analyzing loan programs, investors, rating agencies and investment bankers want to see a minimum of 24 months of loan performance data. Of particular importance is data clearly detailing:

- the frequency with which borrowers miss payments;
- the length of the delinquency, or how long it took the borrower to become current;
- and the frequency and severity of losses resulting from borrower default.

Information provided to capital markets investors must also conform to conventional reporting standards. For example, when a borrower misses a payment, international standards require that the entire outstanding loan balance be recognized as delinquent. In some markets, however, local lending practice dictates that only the missed payment amount be counted as delinquent, resulting in highly misleading delinquency statistics. Financial institutions providing information for securitization must therefore modify their data to conform to the international standards.

Prepayments

International capital markets investors will also focus on prepayment information, which relates to the frequency with which non-scheduled principal payments are made. This includes total prepayments, which generally result from a refinancing or early payoff of the loan balance, and curtailments, which are partial payments of additional principal over and above the normal monthly payment. Curtailments are very frequent in international markets where loans are made in international currencies, such as US dollar denominated loans in Argentina or German mark loans in Poland, and borrowers have an interest in quickly reducing their exposure to currency risk. Prepayment information is particularly relevant in mortgage environments where borrowers tend to sell homes or refinance mortgages with frequency.

Principal prepayments impact the duration and yield of an investment as the investor receives principal earlier than anticipated. The impact of prepayments is often amplified during periods of falling interest rates, as borrowers will have a greater propensity to refinance their mortgages with lower rate loans. As a result, investors will receive increased principal distributions in a decreasing rate environment, impacting reinvestment opportunities and shortening the duration of the original investment.[4]

Additionally, prepayment information is used to structure securitizations and to gauge the impact that prepayments may have on the adequacy of credit enhancements and reserve funds. The prepayment characteristics of a mortgage pool can have real credit implications, if, in a falling rate environment, credit worthy borrowers are able to refinance. Over time, this can cause the pool to experience adverse selection, as the loans remaining after the prepayments represent a concentration of less credit worthy borrowers, who are unable to qualify for refinancing.

If prepayment data is reliable, deals can also be structured to provide custom securities to investors seeking optimum duration and yield. The use of "planned amortization classes" or PACs is an example of how mortgage pool cash flow can be tranched to provide investors with targeted returns, provided prepayments stay within certain limits. With enough data, prepayment speeds can be correlated to changes in interest rates to describe, for example, expected PAC performance when interest rates rise 200 basis points, and when they fall 200 basis points. The ability to create such customized securities can significantly expand the potential investor base for a securitization program, leading to highly efficient financing.

Loan Specific Data

The third critical area of information that is required for the securitization markets is loan data, which includes information about the borrowers' credit history and qualifications for the loan, as well as detailed property information. This demographic information can be used to predict the willingness and ability of individual borrowers to repay their loans, ultimately allowing more accurate sizing of pool credit enhancements, resulting in more efficient financing structures.

Important loan specific data includes measures of affordability, which are denoted by the monthly housing expense as a percentage of monthly income (housing debt-to-income ratio) and the percentage of total monthly debt obligations to monthly income (total debt-to-income ratio).

[4] The prepayment risk in MBS gives these securities negative convexity for securities priced near, or above par, which results in the decline of MBS prices in falling rate environments, the opposite price movement than that of most fixed income securities.

Other data requirements include the results of a credit review to determine the borrower's outstanding credit and past payment performance, and collateral information particularly relating to the quality of the independent appraisal or valuation assessment.

Finding the Data

In the course of its engagements, AGS has found that much of the critical information required by mortgage investors does not exist in many developing financial markets. In some cases this is due to the financial institution not capturing the data, but more frequently the information is not available or is unreliable. The sophisticated use of data in lending practices has been slow to develop in many countries, but while these data limitations are problematic, they can be overcome through physical data recapture programs.

To recreate historical data it is often necessary to go back into the company's databases and physical records to identify and record data that may have been deemed unimportant in the past. This process can be very time consuming and expensive, but is often necessary. Before taking that step, however, it is very important that data requirements are fully understood and that a detailed data capture methodology is developed. This step will ensure that all necessary data items are identified at the outset, significantly increasing the efficiency of the data capture process.

Without a proper methodology in place, a data recapture program can waste valuable time and resources. In one case in which AGS is familiar, a financial institution hired an advisory firm with very limited capital markets experience to go back into the company's records to capture the historical data necessary for a transaction. Unfortunately this firm did not properly define the data criteria and failed to capture several essential data items. As a result, the entire data capture process had to be repeated, increasing the cost of the due diligence to the financial institution by more that US$1 million.

One of the critical lessons learned from this experience was that data definitions must be clearly stated and consistently applied. For example, when identifying a loan as 30 days delinquent, it must be clearly stated whether that classification occurs on the last day of the current month, or the first day of the following month. Inconsistent interpretation of in this definition makes the information worthless.

While the data categories described above are critical to accessing the capital markets, it is also important that the information logically explain the characteristics of the loan. Often this will require additional data items be added to clarify certain points. For example, many markets use different methods of amortization in calculating the repayment schedule of loans. In these cases it is usually necessary to create an additional data field in the loan servicing system to identify the amortization method applied to each loan.

It is also important that the limitations of the data be fully described. For example, unreported earnings, or earnings that are not verifiable by the employer or other outside sources, can often represent a substantial portion of a borrowers income and may be an important consideration in the decision to lend. This limitation in the verified reporting of income should be clearly identified and described in the data to avoid misleading investors.

Investor Reporting is a Key to Success

Once the financial institution has identified and captured the required information, it is equally important that an adequate technology

infrastructure be developed to maintain and report information to investors. This reporting is critical to maintaining the transparency of the transaction and assuring that investors are properly notified of the ongoing performance of both the deal and the underlying collateral. By reporting information in publicly available forums, such as Bloomberg or the issuer's own website, an issuer will increase transparency by allowing for comparison with other securities, increasing the number of potential investors and assisting in the development of a secondary market for deals already sold.

Summary

Securitization represents a powerful tool that emerging market institutions can use to access otherwise inaccessible sources of capital, and its potential is especially high in the area of housing finance, where the credit of the underlying collateral can be used to secure financing. Successful securitization, however, requires high quality, well organized, and up to date data that can be used by investors and rating agencies to analyze the risk and potential return of collateral pools. In many cases, it is the lack of quality data that represents the single biggest impediment to securitization in emerging markets. While the initial work necessary to capture and report high quality data may seem onerous and expensive, having such infrastructure in place will provide institutions the foundation for successful securitization programs going forward, adding a financing option of demonstrated power and versatility.

AGS Financial is an investment banking and advisory firm specializing in securitization and structured finance. Among other services, AGS assists financial institutions with the design and implementation of data recapture programs, and the customization of loan servicing, data tracking, and investor reporting systems.