PART
One

Introduction to Securitization

CHAPTER 1

The Role of Securitization

Every time a person or a firm makes a promise to pay, a financial asset is born. The promise can take the form of a verbal agreement or a written contract. The promise can involve the purchase of an asset or a service. The promise can also be to repay a loan used to acquire assets or services. In each case, the value of the promise as a financial asset will depend on the ability and willingness of the person or firm to make good on the promise. Some loans are backed solely by the general credit of the borrower, while others are backed by legal obligations that would force payment or the forfeiture of a specific asset. Such collateralized promises include mortgages, leases, and auto loans.

It is the full collection of these promises that provide the raw material for the massive securitization market. Some of these promises will remain, for the entire life of the transaction, an agreement that involves only the original two parties. Others will be packaged with other similar promises, passed through a variety of legal structures, and may ultimately be bought and sold by hundreds or even thousands of investors. The process of packaging financial promises and transforming them into a form whereby they can be freely transferred among a multitude of investors is **securitization**.

The raw promises often are not in a form that is desirable to investors. The size of the transactions may be too small or too large. The promises may contain a mixture of risks that are undesirable to many investor groups. Investors may fear that they lack understanding of crucial aspects of the underlying transactions. For all these reasons and more, many financial promises are transformed through the securitization process. This transformation of the raw assets into a form that is more desirable for investors often involves segmenting cash flows and risks, through a process called **structuring**.

Financial markets consist primarily of three types of instruments:

1. Direct obligations of corporations and sovereigns.
2. Derivatives, such as swaps and futures.
3. Securitized and structured assets.

Direct obligations include equities, treasuries, corporate debt, and convertibles. These instruments represent obligations created by the issuer for investors. Derivatives, such as swaps and futures, represent a zero-sum game. They are created when two parties agree to take opposite sides of a transaction. While each side takes on certain risks and obligations, if the two sides were combined they would cancel each other out. Securitization transforms raw assets into tradable units. Structuring rearranges the cash flows and risks of the real financial assets to meet investor needs. In this way, securitization and structuring transactions reflect the characteristics of the original promises from which they were created. Combined, these three tools create the myriad of financial instruments in the markets today.

This book focuses on U.S. mortgage-backed securities, the largest and most developed securitization market, but it also describes securitization of other assets, including commercial mortgages, auto loans, credit-card loans, and securitization outside the United States.

SUMMARY OF MAJOR ASSET CLASSES

Table 1.1 shows the volume of outstanding mortgage-backed securities (MBS) and asset-backed securities (ABS) by collateral type from 1995 to 2002. MBS are by far the most dominant sector in the securitization market. The outstanding volume of MBS in 2002, including both agency and private label, was $4.7 trillion dollars. (A detailed discussion of agency and private-

TABLE 1.1 Mortgage-Backed and Asset-Backed Securities Outstanding (in billions)

	MBS ($)	Credit Cards ($)	Auto ($)	Home Equity Loans ($)	Manufactured Housing ($)	Student Loans ($)	Equipment Leases ($)	Total ($)
1995	2324.5	153.1	59.5	33.1	11.2	3.7	10.6	2595.7
1996	2488.3	180.7	71.4	51.6	14.6	10.1	23.7	2840.4
1997	2692.5	214.5	77.0	90.2	19.1	18.3	35.2	3146.8
1998	2997.0	236.7	86.9	124.2	25.0	25.0	41.4	3536.2
1999	3371.4	257.9	114.1	141.9	33.8	36.4	51.4	4006.9
2000	3602.7	306.3	133.1	151.5	36.9	41.1	58.8	4330.4
2001	4169.9	361.9	187.9	185.1	42.7	60.2	70.2	5077.9
2002	4709.0	397.9	221.7	286.5	44.5	74.4	68.3	5802.3

Source: *2003 Mortgage Market Statistical Annual* and The Bond Market Association.

label MBS is contained in Chapters 6 and 15, respectively.) This volume represented 81 percent of the entire securitization market as shown in Figure 1.1. Credit-card ABS were in a distant second place with $398 billion outstanding or 7 percent of the market at the end of 2001, followed by auto loans ($222 billion or 4 percent), home equity loans ($286 billion or 5 percent), equipment leases ($68 billion or 1.2 percent), student loans ($74 billion or 1.3 percent) and manufactured housing ($44 billion or 1 percent).

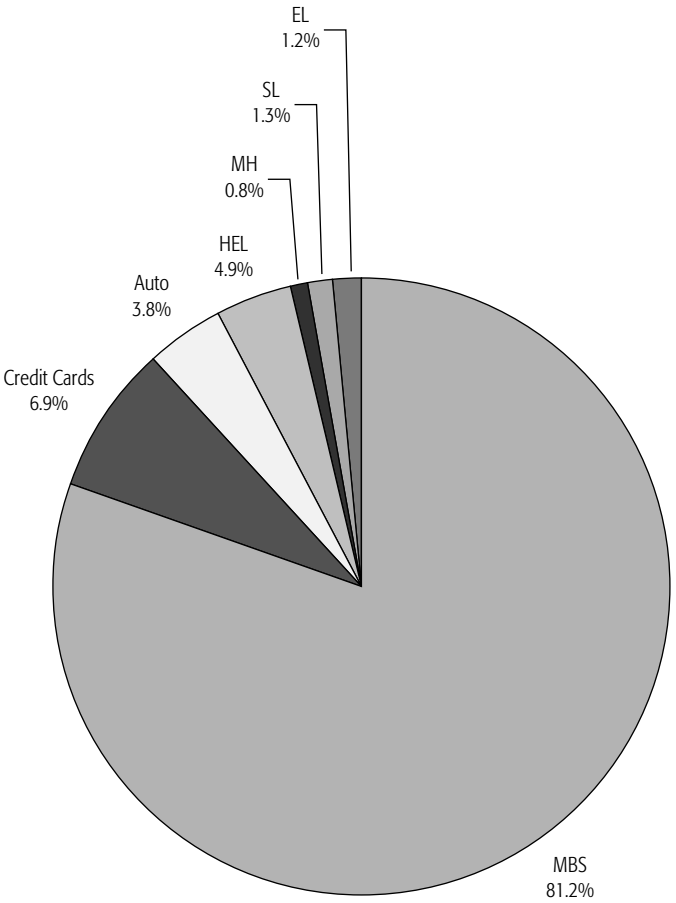

FIGURE 1.1 Composition of outstanding securitization in 2002. HEL = home equity loans, MH = manufactured housing, SL = student loans, and EL = equipment leases. *Sources*: Bond Market Association and *Federal Reserve Bulletin*.

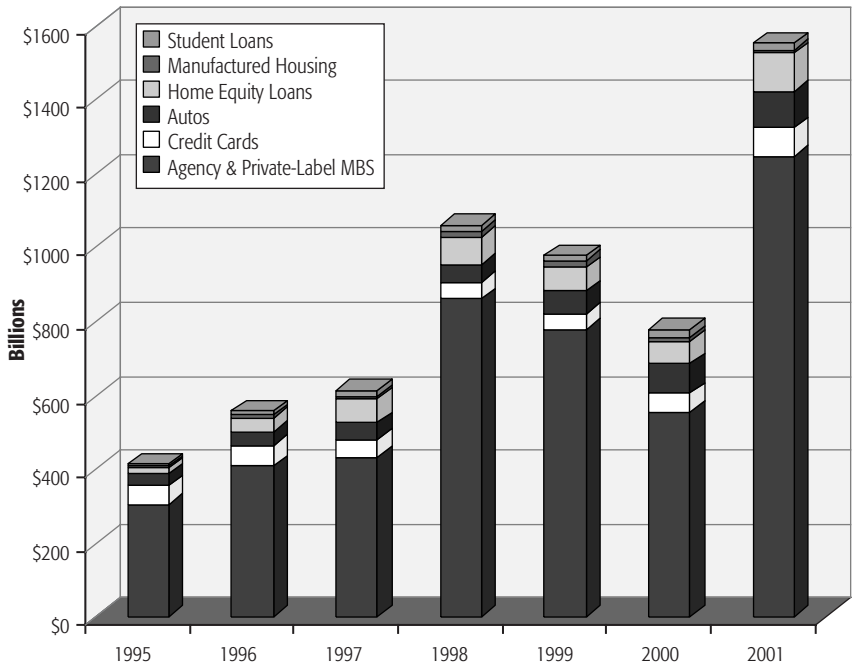

FIGURE 1.2 Volume of MBS and ABS issuance, 1995–2001.
Source: *2003 Mortgage Market Statistical Annual*. The Bond Market Association.

Figure 1.2 shows the volume of newly issued MBS and ABS transactions on an annual basis from 1995 to 2001. Not only has the volume of outstanding MBS eclipsed all other sectors in the U.S. securitization market, but MBS also continue to dominate the volume of annual issuance. In 2001, newly issued MBS reached a record $1.2 trillion as shown in Figure 1.2. MBS issuance has more than quadrupled since 1995. However, the volume of new issuance declined in 1999 and 2000. Origination of mortgage loans during this period declined mainly because of rising mortgage rates.

Figure 1.3 shows a detailed view of ABS issuance by collateral group between 1995 and 2001. The home equity loan (HEL) sector represents the largest sector in terms of newly issued deals in 2001. HEL ABS issuance reached $104 billion in 2001. The HEL sector also experienced explosive growth during the 5-year period shown. Since 1995, issuance of HEL ABS has increased sixfold. However, like the MBS market, HEL ABS issuance volume also declined in 1999 and 2000.

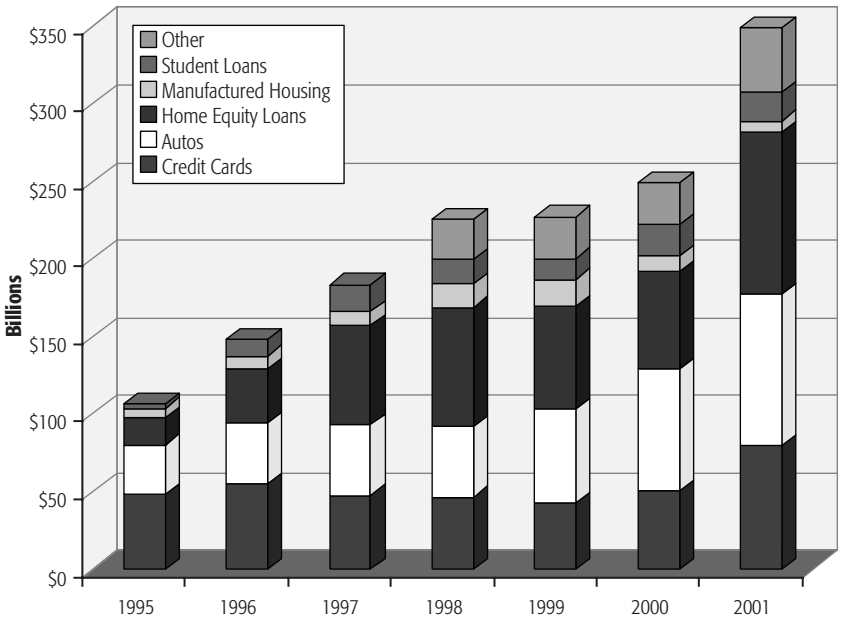

FIGURE 1.3 Volume of ABS issuance, 1995–2001.
Source: *2002 Mortgage Market Statistical Annual*.

Auto loan ABS represent the second largest sector in terms of issuance, followed by credit cards, student loans, and manufactured housing. In 2001, $98 billion of auto loan ABS were issued, which has increased by more than fourfold since 1995. Credit card, student loan, and manufactured housing ABS issuance in 2001 was $79 billion, $18 billion, and $7 billion, respectively.

KEY CONCEPTS

Several key concepts permeate the world of securitization. **Collateral** represents the raw promises that underlie the transaction. The cash flow and credit characteristics of the collateral will determine the performance of the securities and drive the structuring process. There are a wide variety of assets that could be the collateral for securitization. Residential mortgages are the most widely used form of collateral. This derives from two fundamental

features of these loans: First, they are plentiful and, second, there is a well-established legal structure for transferring ownership of mortgages and ensuring the enforceability of lien on the property. Credit-card receivables have also been securitized, but they present significant challenges for structuring transactions; the amount of the borrower's loan can increase or decrease significantly over time and there is no specific collateral supporting the loan. Nevertheless, structuring tools have been developed to securitize these assets as well.

Credit enhancement represents the process whereby securities may be protected from losses or other risks associated with the underlying collateral. Credit enhancement may be provided by an external guarantor, or may be the result of the structure of the securities. External credit enhancement can be in the form of a guaranty on all or part of the promised payments of the securities. The guaranty may be provided by the corporate issuer of the security, or more likely, by a third-party financial guaranty firm. Internal credit enhancement is generally created by **subordinating** some of the bonds or cash flows of the security to other **senior** obligations. These senior/subordinated structures may have very complex rules to describe the distribution of cash flow. Generally, rating agencies are responsible for establishing the appropriate levels of credit enhancement for each transaction.

Standardization is a general term that represents the process of taking disparate loan types and terms and moving toward a common framework. Consistent documents and underwriting are important aspects of standardization. Standardization facilitates investor understanding of the collateral. Without standardization, investors have a great deal of difficulty understanding the cash flows and risks of the underlying loans. If the loan diversity is too great, investors may feel the need to analyze each of the loans individually. At that level of effort, securitization is no longer economical and investors would prefer to invest in individual loans or other products. In the mortgage market, the mortgage agencies—Ginnie Mae, Fannie Mae, and Freddie Mac—have been a very powerful force in standardizing loan terms, loan documents, and underwriting requirements.

Liquidity is one of the goals of securitization and reflects the degree to which the securities can be transferred from one investor to another. While liquidity is an important characteristic of securities, it is difficult to measure. Some measures of liquidity look at the bid–ask spread, the difference in the price where dealers would buy or sell that security. Other measures of liquidity reflect the amount of time to sell a position, without having to price at a significant discount to a price that could be realized if more time were allowed. By packaging loans in standardized packages, with credit enhancement that protects investors, loans can be sold more readily, hence improving liquidity.

There may be many motivations for an issuer to seek to securitize assets. The primary economic motivation is that securitization allows an issuer to sell loans in an efficient manner, that is, to receive the maximum value for the loans. The issuer is then free to utilize the proceeds of the sale of the loans to originate more loans. Without securitization, an originator would be forced to build a large portfolio of loans. The originator would need to finance that portfolio through the issuance of debt and equity. The originator would also bear the risk of changes in value of the loans. Securitization allows the **segmentation** of the origination and investment functions.

There are several key tax, accounting, and legal issues in securitization. The fundamental **tax** issue in securitization is whether there will be taxation at the level of the trust; that is, will the interest payments of the borrowers be considered taxable income to the trust? The fundamental **accounting** issue is whether the securitization will be treated as a sale or a financing. The fundamental **legal** issue in securitization is whether the trust or other legal entity, created for the purpose of holding the collateral, has sufficient title to the assets and is protected from bankruptcy or other disruptions at the issuing firm.

KEY PLAYERS IN SECURITIZATION

Securitization involves a number of players. Let us look at the case of MBS. First, there is the **borrower** who wants a to buy a home. The borrower goes to the **mortgage broker**, who arranges with a **mortgage banker** to originate the loan. The mortgage banker (who also in many cases acts as the **issuer**) will securitize the loan with other similar loans. The security is sold to a **dealer** who will structure the MBS into a collateralized-mortgage obligation (CMO) or sell the MBS outright to a number of investors. In the course of the securitization, the mortgage banker and the dealer will work with a number of parties including **lawyers**, **accountants**, and **rating agencies**. Each of these parties will receive compensation for its services. Generally, they are paid up-front fees that effectively come from the difference between the sale price to the investors and the proceeds to the borrowers. A portion of these expenses may be paid out of "points" paid by the borrower. Points represent a reduction in the amount paid to the borrower relative to the amount owed on the loan. The allocation of proceeds is shown in Figure 1.4.

Once the loan has been originated, the proud home owner will make a monthly payment of principal and interest as required by the loan contract. The loan **servicer** receives this payment and distributes it to the appropriate parties. The distribution of the interest payment is shown in Figure 1.5. The servicer handles the paperwork for the loan and is responsible for collections in the event of a default. In case of default, a **guarantor** may be called on to

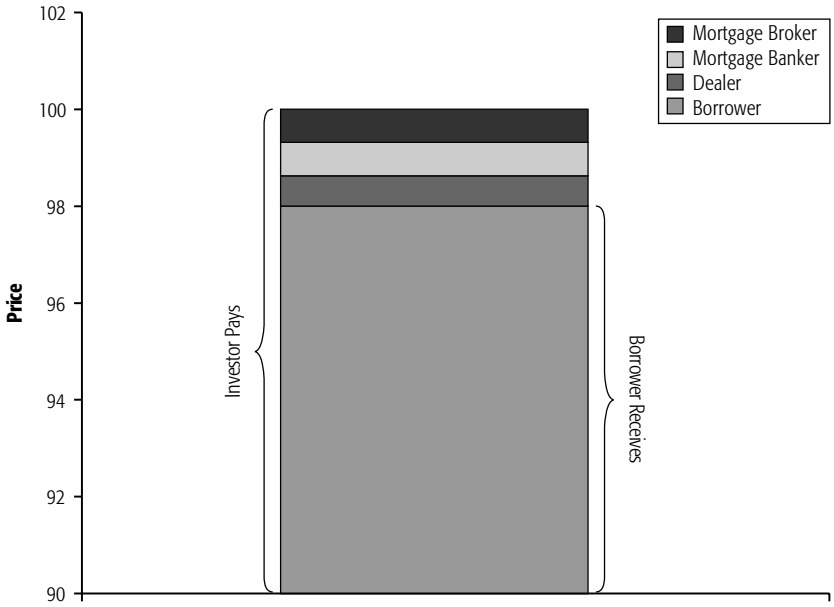

FIGURE 1.4 Allocation of proceeds.

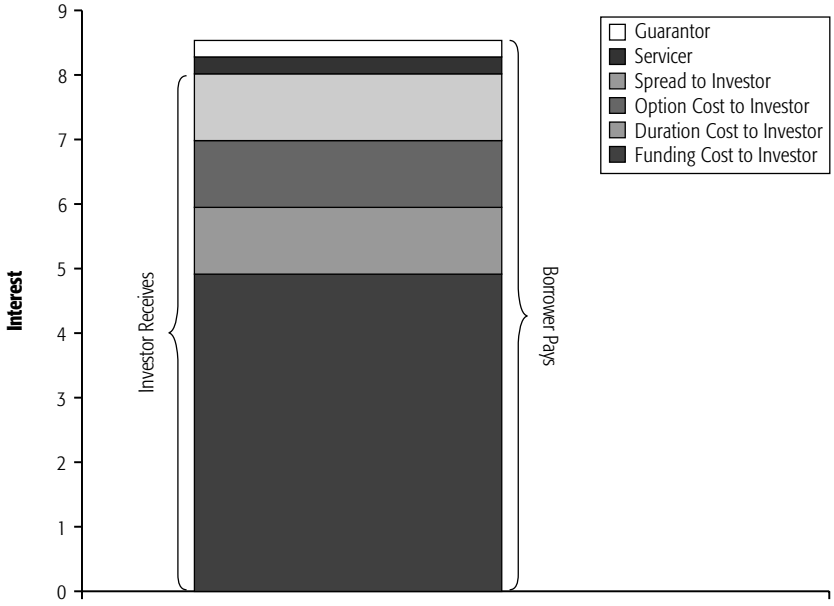

FIGURE 1.5 Distribution of interest payments.

cover any losses. The servicer passes the payments to the **trustee**, who provides for the distribution of the payment to the appropriate bondholders. Generally, the servicer, guarantor, and trustee will all take a slice of the interest payment as compensation for their services.

KEY INVESTMENT CHARACTERISTICS OF SECURITIES (BONDS)

The goal of securitization is to transform the promises of individuals and corporations to make future payments into freely transferable securities that are appealing to investors.

Financial instruments, and bonds in particular, can be viewed as having three general features, which will determine their investment characteristics:

1. Timing of repayment of **principal**.
2. The amount and form of **interest** paid on the amount of outstanding principal.
3. The **credit** quality of the instrument.

The timing of the principal payment determines how long the investor bears the risk of the investment. Principal can be outstanding for months or years. Principal can be returned all at once, in a bullet bond, or can be paid back in monthly increments. Maturity represents the time of the final payment on the bond, while average life is the weighted-average time that principal is received. In securitizations, the amount and timing of principal payments are often driven by the cash flows of the collateral. Because the collateral may have variable payoff schedules, such as prepayments on mortgages, the principal payment schedule of the bonds can also vary.

Interest payments can come in many forms, but generally are either a **fixed** rate or a **floating** rate. Fixed-rate bonds pay a constant rate of interest on the outstanding principal balance. Floating-rate bonds pay a coupon that varies over time. Usually the floating-rate coupon is linked to a particular index such as LIBOR.

The credit quality of the instrument reflects the likelihood that principal and interest payments will be paid in full and on schedule. The credit quality of the bonds will be a result of the credit quality of the collateral and the degree and form of credit enhancement. Credit quality is frequently described by a rating agency, such as Standard & Poor's or Moody's.

Investment characteristics are analyzed by investors who seek to analyze the **value** and the **risk** of the securities. Measures of value include **yield** and

various **spreads**, relative to other instruments. Yield is the calculated internal rate of return of the investment. Spread represents the difference between the yield on the investment and the yield on another instrument. Most investors in securities are primarily interested in relative value, which is whether the instrument offers a more or less attractive return for its risk. Therefore, spread is an important consideration for investors.

Rating is one measure of risk. The rating agencies' highest rating (AAA or Aaa) represents securities with the least risk of default. Securities down to BBB or Baa, are considered investment grade. Securities with lower ratings are considered speculative.

Another measure of risk is **duration**. Duration is a measure of the sensitivity of the price of the instrument to changes in interest rates. A related measure is **convexity**, which represents the change in duration as interest rates change and is a measure of the imbedded option features of the instrument.

There are many ways to calculate these value and risk measures. Various measures have strengths and weaknesses. The choice of appropriate measures and calculations will depend on the instrument being analyzed and the objectives of the investors. There are also additional measures of risk and value that may be appropriate for different instruments depending on the collateral and the structure of the security.

EXERCISES

Exercise 1.1 Make a list of types of financial transactions. Indicate which are the most likely candidates for securitization. Which are the least likely?

Exercise 1.2 Figure 1.5 shows the allocation of interest cash flows. What factors are likely to lead to higher monthly fees? What does that mean about the rate charged to the borrower? Is the market more likely to accept a lower rate on an investment to cover higher fees or is the borrower more likely to pay?

Exercise 1.3 Borrowers generally receive the face amount of the loan or less when they borrow. Points reflect receiving less than the face amount as proceeds. If the loan can only be sold at a price well below the face amount, what will be the economics to the originator? If a loan can be sold at a premium price, what does that say about the coupon on the loan?

Exercise 1.4 Suppose a $100,000 loan has a maturity of 5 years. If the borrower makes a $20,000 principal payment at the end of each year, in addition to any interest due, the average life of the loan is 2.5 years. (Average life is the weighted-average time until the receipt of principal.)

a. What is the average life of the loan if the borrower pays $50,000 per year for the first 2 years?
b. What is the average life if the borrower makes no principal payments until the maturity date?