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The Securitization of Housing Finance

The Latin American Debt Problem And U.S. Agriculture

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The Securitization of Housing Finance

By Gordon H. Sellon, Jr. and Deana VanNahmen

Prior to 1970, the system of housing finance in the United States suffered from a number of deficiencies. A principal concern was the lack of a national secondary market for mortgage loans. The absence of a secondary market resulted in geographic imbalances in the flow of mortgage funds and prevented housing from tapping into the growing supply of savings managed by institutional investors, such as pension funds, mutual funds, and life insurance companies. These problems were exacerbated by regulations on loan and deposit rates that distorted the flow of savings into the housing industry and contributed to boom and bust cycles in mortgage lending.

Since 1970, however, housing finance has undergone a radical transformation. The securitization of mortgage loans and financial deregulation have revolutionized the nature of housing finance. The first stage of securitization occurred in the early 1970s as the introduction of government-insured mortgage securities provided the basis for a national secondary market in mortgage lending that helped eliminate geographic imbalances in mortgage flows and attract new investors to housing. A second wave of securitization occurred in the early 1980s as unprecedented interest rate volatility and financial deregulation spawned a variety of new mortgage contracts and a plethora of complex mortgage securities.

While transforming housing finance, securitization has also raised a number of important public policy issues. Among these issues are the proper scope of government involvement in the securitization process, the future role of traditional housing lenders, and the relationship between securitization and the riskiness of the financial system.

This article provides an overview of the impact of securitization on housing finance and discusses some of the important public policy issues. The article is divided into three sections. The first section describes the nature of housing finance prior to 1970 and the important part played by govern-

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ment in the housing process. The second section discusses the development of mortgage-backed securities and their impact on housing finance. The final section explores some of the implications of securitization for public policy.

Housing finance prior to 1970

Government policy has played a key role in the evolution of the system of housing finance. Extensive government involvement in housing began in the 1930s as the government attempted to restore stability to a system of housing finance that had been dangerously weakened during the Depression. Government continued to have an active role in the postwar period as housing policy emphasized the provision of an expanding supply of affordable housing to meet the needs of a growing population.

The role of government in housing finance

During the Depression, the system of housing finance suffered considerable damage as the flow of funds into housing was reduced and foreclosures became widespread. Among the many government programs enacted in the 1930s to assist housing, four developments stand out as playing a key role in the subsequent evolution of housing finance. They are the establishment of the Federal Home Loan Bank System and the insurance of savings deposits, the development of government mortgage insurance, the creation of the Federal National Mortgage Association, and the adoption of the long-term, fixed-rate mortgage contract.[1]

Prior to the 1930s, savings and loan associations were the primary source of funds to housing. During the Depression, government programs to create the Federal Home Loan Bank System and to provide federal insurance on savings deposits helped stabilize the flow of funds into housing. Deposit insurance provided stability to housing by reducing the risks of financial loss for depositors in S&Ls. At the same time, the Home Loan Bank System promoted stability by providing liquidity to S&Ls, allowing them to invest more funds in home mortgages. Thus, the effect of these programs was to reinforce the traditional role of S&Ls in housing finance.

A second important government program was the creation of federal mortgage insurance under the FHA and, later, VA programs. Direct government insurance of mortgages had a number of consequences for housing. First, mortgage insurance allowed investors other than savings and loan depositors to commit funds to housing with reduced credit risk. Second, with the government assuming credit risk, mortgage investors were willing to accept a lower yield on their investment, which translated into reduced costs for borrowers. Third, the government mortgage insurance program required standardization of the underlying mortgage contract. Standardization is crucial both to the development of a wider primary market for mortgage lending and to the creation of a secondary mortgage market.

The third key government housing program during the 1930s was the creation of the Federal National Mortgage Association (FNMA) or "Fannie Mae." A principal function of FNMA was to improve liquidity in housing finance by providing secondary market services to the housing industry. FNMA was authorized to purchase mortgages from originators, to hold these mortgages in its portfolio, and to finance its purchases of mortgages with debt issues in the capital market. Thus, in principle, FNMA could provide stability to housing by purchasing mortgages in periods of strong credit demand and selling mortgages in periods of weak credit demand. In practice, because it was limited to purchasing

[1] Much of this discussion is motivated by James L. Pierce. *Monetary and Financial Economics.* John Wiley and Sons, New York. 1984. pp. 275-295.

government-insured loans, FNMA was severely restricted in its secondary mortgage market activities. Later, however, FNMA and other similar federally created housing agencies became the vehicle for the securitization of housing finance.

The fourth government initiative introduced in the 1930s was support for a long-term, fixed-rate mortgage contract as the standard of the housing industry.[2] Prior to the 1930s, mortgage loans were typically short-term, 3 to 5 year, nonamortizing loans. During the Depression, the characteristics of this type of loan contributed to the housing crisis as mortgage lenders became unwilling to roll over existing loans and borrowers were unable to repay the principal. To reduce these problems, the government required the housing industry to adopt the familiar long-term, fixed-rate mortgage contract. This contract was attractive to housing lenders because deposit insurance provided a stable source of mortgage funds. At the same time, borrowers found the terms of this type of loan to be more affordable. This form of mortgage contract had important implications later, however, both for the health of the savings and loan industry and for the types of institutions providing funds to the housing industry.

The structure of housing finance

In the postwar period, the demand for housing grew rapidly and the supply of investment funds flowing into housing expanded. The government programs enacted in the 1930s helped shape the way housing was financed.[3]

The programs enacted in the 1930s to strengthen the savings and loan industry helped S&Ls emerge as the dominant provider of housing funds in the 1950-70 period. Indeed, as shown in Chart 1, S&Ls generally gained market share versus alternative mortgage lenders, such as commercial banks, life insurance companies, and mutual savings banks.

Government mortgage insurance also played a significant part in postwar housing finance by effectively creating separate markets for government-insured and conventional mortgage loans. The conventional mortgage market was essentially a local market with lending dominated by S&Ls. That is, conventional mortgage loans were generally made by S&Ls to borrowers in their local market using locally generated deposits.[4]

The market for government-insured loans operated very differently. The largest lenders for government-insured mortgages were life insurance companies and mutual savings banks.[5] Unlike S&Ls, these lenders generally did not originate the loans in their portfolios. Instead, they purchased the loans from mortgage banking companies who originated and serviced the loans. Also, in contrast to the conventional mortgage market, the government-insured market tended to be national in scope, with life insurance companies and mutual savings banks purchasing loans from around the country.

The dominance of the S&Ls in the conventional market but not in the government-insured market can be traced at least in part to the insurance guarantee and to the nature of the mortgage contract. Life insurance companies and mutual savings banks were attracted to the government market largely because of the insurance guarantee and the associated standardization of the loans.

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2 Pierce. p. 284.

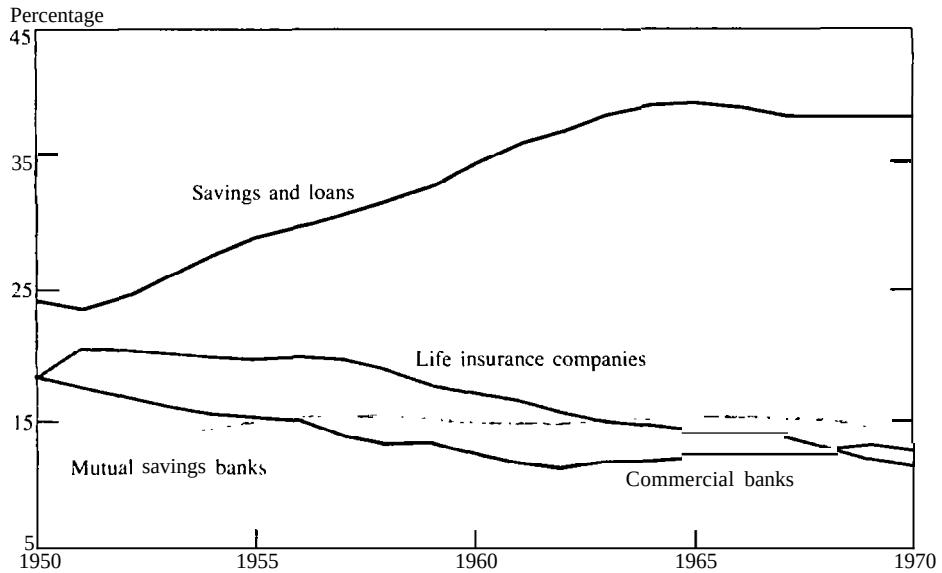
3 For a detailed discussion of post-war housing finance to 1965, see J.A. Cacy. "Financial Intermediaries and the Post-war Home Mortgage Market," *Monthly Review*, Federal Reserve Bank of Kansas City. January/February 1967, pp. 12-21.

4 Cacy, pp. 13-14.

5 Cacy, pp. 13-14.

CHART 1

Market share: mortgage debt as a percentage of total residential mortgage debt



Source: Board of Governors, Federal Reserve System, Macro Data Library.

Thus, S&Ls faced significant competition for government-insured mortgages, which tended to reduce the profitability of these loans for S&Ls.[6]

In contrast, S&Ls faced less competition in the conventional market. Partly, this reflected the greater credit risks and costs of monitoring uninsured loans that excluded nonlocal lenders. In addition, other local lenders such as commercial banks were not generally attracted to the mortgage market because of the long maturity of mortgage loans.

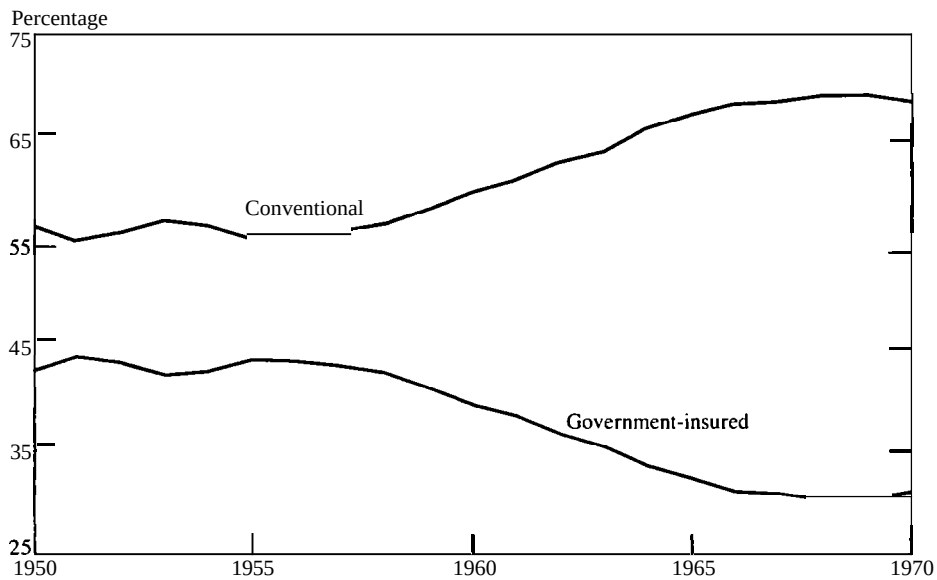
The nature of the mortgage contract also posed difficulties for other potential mortgage lenders, such as pension funds. Although the standard mortgage contract had a long stated maturity of 30 years, the ability of homeowners to prepay the mortgage reduced the effective maturity of these loans. In addition, the possibility of prepayment was quite uncertain and depended upon a variety of factors such as interest rates and demographic variables. Thus, potential housing lenders with a preference for a debt instrument of a long maturity and/or a certain maturity tended to avoid mortgage loans.

The final government housing initiative of the 1930s, "Fannie Mae," played a limited role in the 1950-70 period. Originally envisaged as a means of promoting a secondary market for mortgage loans, FNMA's lending activities were greatly restricted. Until 1970, FNMA was prohibited from holding conventional mortgage loans in its portfolio. Thus, its mortgage market support activities were confined to the government-insured market. Additional restrictions on its ability to purchase older loans or to sell loans from its portfolio limited FNMA's efforts in the government market.

6 Cacy, p. 19

CHART 2

Conventional vs. government-insured mortgage loans as a percentage of total residential mortgage debt



Source: FNMA Statistical Summary on Housing and Mortgage Finance Activities, 1960-1982.

The need for housing finance reform

Despite the rapid growth of housing in the postwar period, policymakers were increasingly concerned that the supply of affordable housing was not keeping pace with society's needs. Academics and policymakers identified a number of problems with the structure of housing finance whose resolution would require significant reform in the government's housing program.[7]

The principal problems with housing finance stemmed from the fact that most of the growth in housing in the postwar period occurred in the conventional mortgage market.[8] The relative shares of the conventional and government-insured markets are shown in Chart 2. Because conventional mortgage markets were local in their scope, the allocation of funds to housing was marred by geographic inefficiencies. That is, with a series of unconnected local markets for conventional loans, housing funds did not flow from areas with surplus savings to areas with excess demands for housing loans.

In addition to the lack of integration of local housing markets, there was a lack of integration of these markets with national capital markets. This problem had two dimensions. On the one hand,-housing was periodically affected by credit

7 See, for example, Oliver Jones and Leo Grebler, *The Secondary Mortgage Marker: Its Purpose, Performance, and Potential,* University of California, Los Angeles, 1961; and J.A. Cacy, "Specialized Mortgage Marketing Facilities," *Monrhly Review,* Federal Reserve Bank of Kansas City, July/August 1967, pp. 3-13.

8 The differential growth in the two markets can be traced to restrictions on eligibility for government-insured loans and to factors such as liberalized terms on conventional mortgages and the development of private mortgage insurance.

crises when high market interest rates led to an outflow of deposits from S&Ls. The credit crisis in 1966 was a prime example of this "disintermediation," and it had an important effect on the push for housing reform. On the other hand, the enormous growth in savings controlled by institutional investors, such as pension funds, mutual funds, and life insurance companies, was seen as a source of funds that potentially could be tapped for housing needs.

In contrast to the conventional market, the market for government-insured loans did not suffer from the same difficulties. The role of government insurance was particularly important in developing a national market for these loans. For example, with the protection of insurance guarantees, mutual savings banks in the Northeast could channel surplus savings to other parts of the country. Moreover, government-insured loans proved to be attractive to national institutional investors, such as life insurance companies. Finally, the government-insured market had access to capital markets through FNMA debt issues.

The development of mortgage-backed securities

To create an active secondary market for both conventional and government-insured loans and to improve the linkages between mortgage and capital markets, the government made radical changes in its housing program from 1968 to 1970. The key features of this new program were a restructuring and expansion of the role of the federal housing agencies and the creation of a new type of debt instrument, the mortgage-backed security.

Since the early 1970s, the market for mortgage-backed securities has undergone tremendous growth and change. Financial deregulation and interest rate volatility have played an important part in the development of the market as new types of securities have been created and private financial institutions have begun to assume a limited role in the market.

The role of government agencies

To implement changes in its housing program, the government changed the role of FNMA and created two new housing finance agencies, the Government National Mortgage Association (GNMA) or "Ginnie Mae," and the Federal Home Loan Mortgage Corporation (FHLMC) or "Freddie Mac." The three agencies differ in their structure and ownership and in the functions that they perform in the mortgage market.[9]

In 1968, FNMA was turned into a private corporation with private management and publicly held stock.[10] GNMA was created at the same time to assume FNMA's credit market support functions and to administer mortgage guarantee programs. GNMA operates as a government agency, under the supervision of the Secretary of Housing and Urban Development. FHLMC was created in 1970 in order to develop a secondary market for conventional mortgage loans. FHLMC is owned by savings and loan associations and the Federal Home Loan Banks.

A principal function of all three agencies in support of the housing market is their provision of a guarantee for mortgage-backed securities. Thus, GNMA guarantees full and timely payment of interest and principal on its securities and its guarantee is backed by the "full faith and credit"

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9 A more detailed discussion of the agencies and their programs can be found in Kenneth G. Lore, *Mortgage-Backed Securities: Developments and Trends in the Secondary Mortgage Market,* Clark Boardman Co. Ltd., New York, 1987-88 edition, pp. 2-1 to 2-58.

10 FNMA continues to be subject to a number of federal constraints and *so* is not an entirely private corporation. See Lore, p. 2-19 to 2-20.

of the government. FNMA provides a similar guarantee and, while it is no longer a government agency, is viewed in the capital markets as having "agency status.'' FHLMC guarantees full and timely payment of interest and ultimate payment of principal and, it too, is viewed as having agency status. Having agency status allows FNMA and FHLMC to obtain AAA credit ratings and thus incur lower borrowing costs."

GNMA's principal role in the market for mortgage-backed securities is to act only as a guarantor of securities issued by thrifts, mortgage bankers, and other mortgage originators. That is, GNMA does not issue mortgage-backed securities or purchase mortgage loans. In contrast, both FNMA and FHLMC provide insurance guarantees, issue mortgage-backed securities, and buy and sell mortgage loans. More recently, FHLMC and FNMA have been actively involved in the design of new types of mortgage-backed securities.

GNMA guaranteed securities, backed by FHA and VA loans, were first issued in 1970. FHLMC first issued securities backed by conventional loans in 1970, while FNMA-issued mortgage-backed securities began in 1981.[12]

Types of mortgage-backed securities

In generic form, a mortgage-backed security is a debt instrument whose interest and principal payments are either derived from the cash flows of an underlying pool of mortgages or are collateralized by the mortgage pool. The market for mortgage-backed securities has evolved in several stages of increasing complexity. Despite structural differences, however, all mortgage-backed securities share a common goal: to create a security that is similar to and competitive with other debt instruments in the capital market. This subsection examines three important types of mortgage-backed securities and summarizes some of the more recent market developments.

Pass-through securities. Pass-throughs were the first mortgage-backed security and are still the most important type in the market. Their importance derives from the fact that they are widely held in investment portfolios and are also used as backing or collateral for other, more complex types of mortgage securities.[13]

The basic features of a pass-through security can be seen in a typical GNMA security. To create a GNMA pass-through, an approved mortgage originator will assemble a pool of government-insured mortgages that conform to criteria set by GNMA. The originator will then issue a security whose interest and principal represent an undivided interest in the cash flow of the underlying mortgages. That is, each investor receives a pro-rata share of the underlying cash flow. GNMA guarantees timely payment of interest and principal for securities backed by this mortgage pool and. charges a fee for this guarantee. The interest rate on the GNMA security is lower than the rate on the underlying mortgages due to the GNMA guarantee fee and to payments to the servicer of the mortgage pool.

The pass-through security has a number of characteristics, both positive and negative, that

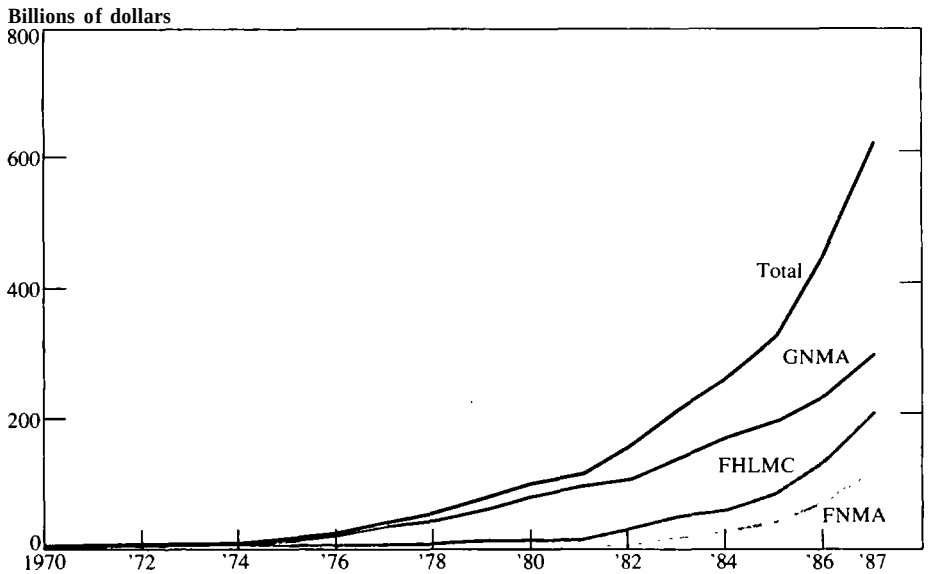
11 For a more detailed discussion of these guarantees, see Lore, p. 9-21 to 9-28.

12 GNMA guarantees are confined to government-insured mortgages. FHLMC and FNMA are not restricted but operate mainly in the conventional market. Both FHLMC and FNMA have upper limits on the size of the mortgage that can be included in their mortgage pools. This limit is linked to housing prices and so has generally increased over time.

13 Additional information of pass-through securities can be found in Kenneth H. Sullivan, Bruce M. Collins, and David A. Smilow, "Mortgage Pass-through Securities" in *The Handbook of Fired Income Securities*, Frank J. Fabozzi and Irving M. Pollack (eds.), Dow Jones-Irwin, Homewood, Ill., 1987, pp. 382-403.

CHART 3

Agency pass-throughs outstanding



Source: Board of Governors, Federal Reserve System, Macro Data Library

influence its acceptance by investors. First, because of the government guarantee, the pass-through security is free of credit risk. Second, unlike the underlying individual mortgages, the security can be issued in large denominations and is highly liquid. Third, its cash flow is monthly, unlike the cash flows of corporate or government debt. Fourth, the pass-through security is subject to the same prepayment risk as the underlying mortgages so that the size and timing of payment is uncertain. Fifth, the sale of a pass-through is treated as sale of assets; that is, ownership of the underlying mortgages is transferred to the owner of the security.

The pass-through market was created by the government housing agencies and continues to be dominated by these agencies. There have been relatively few privately issued and guaranteed pass-throughs.[14] The growth of GNMA, FHLMC, and FNMA pass-throughs is shown in Chart 3. At the end of **1987,** approximately **$627** billion of agency pass-through securities were outstanding.

The development of the pass-through security has had a number of beneficial effects on housing finance. Its principal impact has been to improve the liquidity of the mortgage market. helping to eliminate the geographic inefficiencies that characterized mortgage markets prior to **1970.** For example, a lender with surplus funds because of a lack of local housing demand can

[14] **For the most pan, private pass-throughs have involved so-called "jumbo" loans, which exceed agency ceilings. In** 1987, $1 1.1 **billion of private pass-through securities were issued. Generally speaking, privately guaranteed pass-through securities have not been cost-competitive with government-guaranteed securities. In addition, the development of a private market has been hindered by favorable tax and regulatory treatment of government securities. See Lore, pp. 1-37 to 1-49.**

purchase pass-through securities. Alternatively, a lender with local mortgage demand exceeding local funding can sell pass-through securities and use the funds generated to make additional loans. A second positive effect is the ability to use pass-throughs as collateral for borrowing. Thus, institutions holding pass-through securities as assets find that the credit guarantees and liquidity make these securities better and cheaper sources of collateral than whole mortgage loans. Finally, pass-throughs improve the integration of mortgage and capital markets because they appeal to investors desiring to purchase securities rather than individual loans.

Despite these advantages, pass-through securities have not proved to be the solution to all housing finance problems. First, while pass-throughs have some of the characteristics of traditional debt securities, they also have limitations. The chief limitation is the presence of prepayment risk and the lack of certainty about interest and principal payments. In addition, monthly payment streams are less attractive to many institutional investors who are accustomed to quarterly payments. Unfortunately, for many years tax laws prevented the modification of pass-throughs to remedy these difficulties. Any change in the structure or timing of pass-through payments was sufficient to change the pass-through to a debt instrument for tax and accounting purposes.[15]

Second, because of their treatment as a sale of assets, pass-throughs proved to be unattractive to many thrift institutions whose loan portfolio consisted of mortgages with below-market yields. If securitized using a pass-through, these loans would have to be sold at a loss. As a result of these limitations, other types of mortgage-backed securities were developed by financial institutions and the federal agencies.

Mortgage-backed bonds. A second type of mortgage-backed security is the mortgage-backed bond. Mortgage-backed bonds are debt instruments that are collateralized by mortgage loans or pass-through securities. Unlike pass-through securities, the owners of mortgage-backed bonds do not have an ownership interest in the underlying mortgage instruments and there is no automatic pass-through of cash flow from the mortgages to the bond holder. As a debt instrument, mortgage-backed bonds are a liability of the issuing institution and the underlying collateral remains on the balance sheet of the issuer.[16]

Mortgage-backed bonds were developed by thrift institutions and investment bankers in the mid-1970s as a way for thrift institutions to obtain funds without having to sell mortgages with below-market yields from their portfolios. Like corporate bonds, the timing of interest and principal payments on mortgage-backed bonds are not directly related to the cash flow of the collateral. As a result, the cash flows of the mortgage-backed bond are not subject to prepayment risk, and payments can be made quarterly or semi-annually. Thus, in principle, mortgage-backed bonds solve many of the difficulties of pass-through securities.

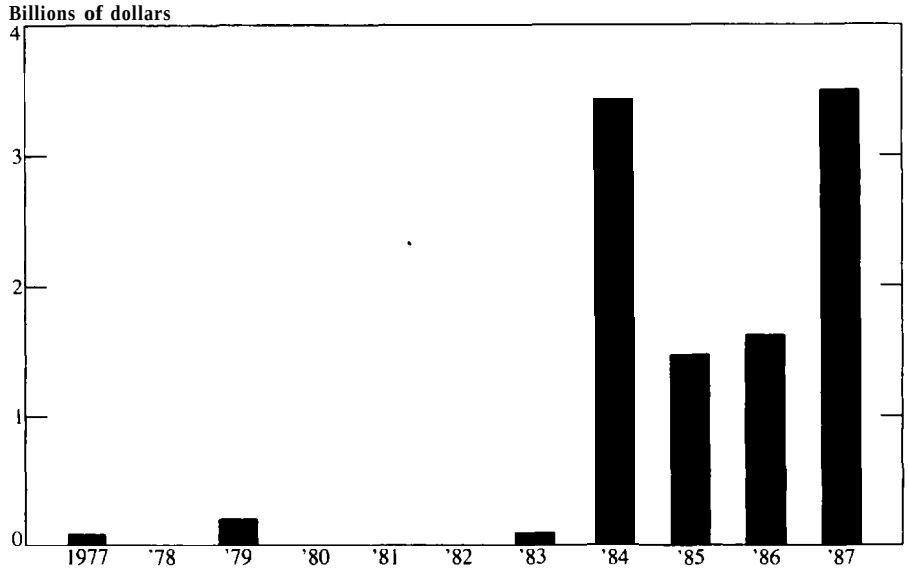
However, mortgage-backed bonds have their own limitations that have hindered their development. The chief problem with mortgage-backed bonds is the lack of a government credit guarantee. Even though the collateral may have government insurance, the cash flow of the collateral is not directly connected to the cash flow of the bond. Thus, to be competitive with other securities, mortgage-backed bonds must have

15 For a detailed discussion of tax and accounting issues related to mortgage-backed securities, see Lore, pp. 6-1 to 6-109 and pp. 7-1 to 7-28.

16 Additional information on mortgage-backed bonds can be found in Barbara Pauley and Richard Brennan, "Mortgage-Backed Bonds: Evolution Creates Opportunity," *Memorandum to Portfolio Managers*, Salomon Brothers, Inc., New York, March 10, 1988.

CHART 4

Mortgage-backed bonds issuance



Source: Salomon Brothers: *Mongage-backed Bonds: Evolution Creates Opportunity*, Barbara Pauley. March 10, 1988

substantial credit enhancement, typically in the form of a high degree of overcollateralization. As a consequence, mortgage-backed bonds can be an expensive way of raising funds. In addition, the absence of government insurance and lack of standardization of the bonds issues imply that these bonds have very little secondary market liquidity.

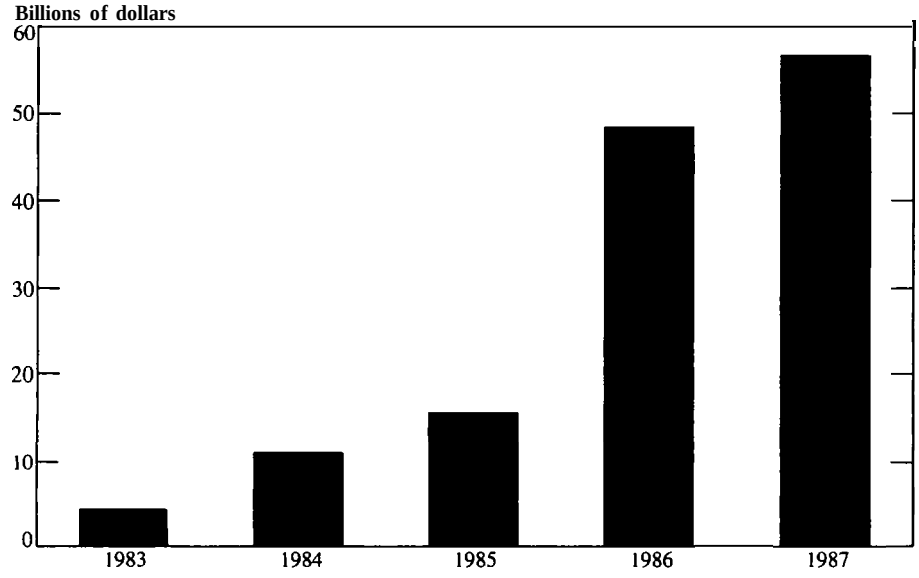
The development of the market for mortgage-backed bonds is shown in Chart 4. Initially issued in small amounts in 1977 and 1979, mortgage-, backed bonds did not become popular again until 1984. Although issuance has risen in recent years, these bonds make up a very small part of the market for mortgage-backed securities. Thus, the total amount of mortgage-backed bonds outstanding at the end of 1987 was about $12 billion, an amount that is dwarfed by the $627 billion of outstanding federally related pass-throughs. The increase in recent years is partly due to an increased demand for funds by thrifts and partly due to the development of new types of bonds with characteristics appealing to specific investor niches.[17]

Collateralized mortgage obligations. Collateralized mortgage obligations (CMOs) represent an important advance in the growing market for mortgage-backed securities. Introduced in 1983 by FHLMC and First Boston Corporation, CMOs are multi-class bonds backed by a pool of mortgages or by pass-through securities. CMOs share characteristics of both pass-throughs and mortgage-backed bonds. Like pass-throughs, CMOs are backed by collateral whose cash flows are dedicated to the bond. Thus, CMOs do not require as much overcollateralization as

[17] Thus, some issues have been in the eurobond market and others have involved new features such as yields fixed in real terms.

CHART 5

CMO's issuance



Source: Salomon Brothers: Review of Housing and Mortgage Markets. August 1987, *Weekly Mortgage Market Update*, June 3, 1988.

mortgage-backed bonds. Like mortgage-backed bonds, CMOs are treated as debt instruments and so remain on the balance sheet of the issuer. Moreover, while the mortgages or pass-through securities backing a CMO may be insured, the CMO bonds have no government insurance guarantees.[18]

The basic objective in the design of a CMO was to transform mortgage cash flows into bond classes of different maturities so as to reduce the uncertainty about the timing of cash flows caused by prepayment. In this way, CMOs overcame the main limitations of pass-throughs. This goal was accomplished by allocating principal payments and prepayments to different bond classes according to a predetermined schedule. For example, in its simplest form, a CMO might have two bond classes. The first class is a fast-paying class that receives scheduled interest payments and all principal payments and prepayments until the class is paid off. The second or slow-paying class receives interest payments, but no principal payments, until the first class is retired. In effect, the cash flows of the mortgages are transformed into two bonds, one with a relatively short maturity and one with a longer maturity.

Unlike pass-throughs, which have been the province of the federal housing agencies, CMOs have been issued by federal agencies and by investment banks, thrifts, home builders, mortgage bankers, insurance companies, and commercial banks. CMOs have been issued in a variety of formats with as few as three classes and as many

[18] Additional discussion of CMOs can be found in Richard Roll, "Collateralized Mongage Obligations: Characteristics, History, Analysis," in *Mortgage-Backed Securities: New Strategies, Applications and Research*, Frank J. Fabozzi (ed.), Probus Publishing, Chicago, Ill., 1987, pp. 7-44; and Gregory J. Parseghian, "Collateralized Mortgage Obligations," in *The Handbook of Fixed-Income Securities*. pp. 404-421.

as ten classes. As shown in Chart 5, issuance of CMOs expanded gradually from 1983 to 1985 and then increased dramatically in 1986 and 1987. In relative terms, CMOs are much more important than mortgage-backed bonds and are growing in relation to the pass-through market. In 1987, $57 billion of CMOs were issued as compared to $3.5 billion of mortgage-backed bonds and $235 billion of agency pass-throughs.

CMOs have advantages and disadvantages as compared with pass-through securities. The chief attraction of CMOs is the creation of mortgage-backed securities with distinct maturity classes. Thus, CMOs may attract new investors to the housing market, investors who did not find pass-through securities attractive.[19]

In fact, there is some limited evidence that CMOs are accomplishing the objective of attracting new investors. In 1986, thrifts, commercial banks, life insurance companies, and pension funds were the largest purchasers of CMO classes. Pension funds who have traditionally committed few funds to housing were the largest purchasers of all of the classes. Moreover, pension funds and life insurance companies mainly bought the longer-maturity classes while thrifts and commercial banks tended to purchase the shorter maturities.[20]

CMOs also have disadvantages which may limit their appeal. The chief disadvantage is that CMO classes are relatively illiquid securities. In sharp contrast to pass-throughs, CMO classes are issued in relatively small amounts, by a variety of issuers, with little standardization among issuers. CMOs also lack government guarantees. Thus, CMO classes do not have a well-established secondary market and so are not nearly as liquid as pass-throughs.

Recent developments in mortgage-backed securities. The market for mortgage-backed securities has undergone considerable evolution in recent years. While the market originally developed as a govemment initiative, many recent developments have been market-driven in response to financial deregulation and greater interest rate volatility. Significant changes have been made in the structures of pass-through securities and CMOs.

An important development in the pass-through market has been the proliferation of new types of mortgage contracts. The high and volatile interest rates in the early 1980s led to important changes in the standard mortgage contract. Some of the important new types of mortgages created are adjustable rate mortgages, graduated payment mortgages, shorter term mortgages, and mortgages that are convertible from variable to fixed rates. New types of pass-through securities have been developed by the federal agencies to conform to the new mortgage contracts and to provide secondary market support for these mortgages.

A second development is the creation of pass-through securities which, like CMOs, transform the cash flows of the mortgage pool. An important factor in this development was the 1986 change in tax laws, which created the Real Estate Mortgage Investment Conduit (REMIC). A REMIC is a legal entity for issuing mortgage-backed securities without the tax and accounting difficulties that plagued their early development.[21]

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19 With a CMO, the timing of the payments can be different from the underlying mortgages. This may make CMOs attractive to investors who want a quarterly or semi-annual payment stream.

20 See Lore, p. 3-21. Similar information is provided in Parseghian, pp. 420-421.

21 For an overview of REMICS, see Panos Konstas, "REMICS: Their Role in Mortgage Finance and the Securities Market." *Bonking and Economic Review*. Federal Deposit Insurance Corporation, May/June 1987, pp. 11-18. For a more comprehen-

As a result of these changes, multi-class pass-through securities have been developed in the past two years. One of the more notable examples is the stripped mortgage-backed security in which one class receives only interest payments from the mortgage pool while a second class receives only principal payments.[22]

CMOs have also evolved in more complex ways. One early development was the creation of a so-called Z-bond. The Z-bond class of a CMO is a zero-coupon bond that receives neither interest nor principal payments until prior classes are paid off. Thus, the Z-bond has an extremely long maturity and also has the effect of shortening the maturities of the other classes. More recent developments in CMO structures have included floating-rate and inverse floating rate classes.[23]

These recent developments in both the pass-through and CMO markets have helped expand the investor pool for mortgage lending by protecting investors from increased interest rate volatility. Thus, for example, the interest-only portion of a stripped mortgage-backed security can be used as a hedging device for investors in mortgage-backed securities. Certain CMO classes also have useful hedging properties while floating rate classes directly protect the investor from interest rate volatility. At the same time, however, many of these new securities have unusual price and interest rate behavior as compared to standard pass-through securities. Thus, they pose considerable risks for unsophisticated investors.[24]

Mortgage-backed securities and housing finance

Evaluating the impact of mortgage-backed securities on housing finance involves answering two questions. What is the magnitude of mortgage securitization since 1970 and is the trend likely to continue? Have mortgage-backed securities contributed to solving the problems that plagued housing finance prior to 1970?

By most measures, securitization has had a large and growing influence on the mortgage market. One gauge of this impact is the fraction of mortgage debt that has been securitized. Chart 6 shows the amount of agency pass-through securities outstanding as a percent of residential mortgage debt. By this measure, the fraction of mortgage debt securitized has increased steadily since 1970, reaching 30 percent in 1987.[25]

An important determinant of the future trend of securitization is the rate at which new mortgage loans are being securitized. Chart 7 shows the fraction of new mortgages that have been turned into agency pass-through securities from 1970 to 1987. Although variable from year to

sive treatment see Kenneth G. Lore and Kyllikki Kusma, ***Mortgage-Backed Securities—Special Update: REMICS.*** Clark Boardman Co. Ltd., New York. 1987.

22 Stripped securities are discussed in more detail in Sean Becketti, "The Role of Stripped Securities in Portfolio Management," ***Economic Review,*** Federal Reserve Bank of Kansas City, May 1988, pp. 20-31.

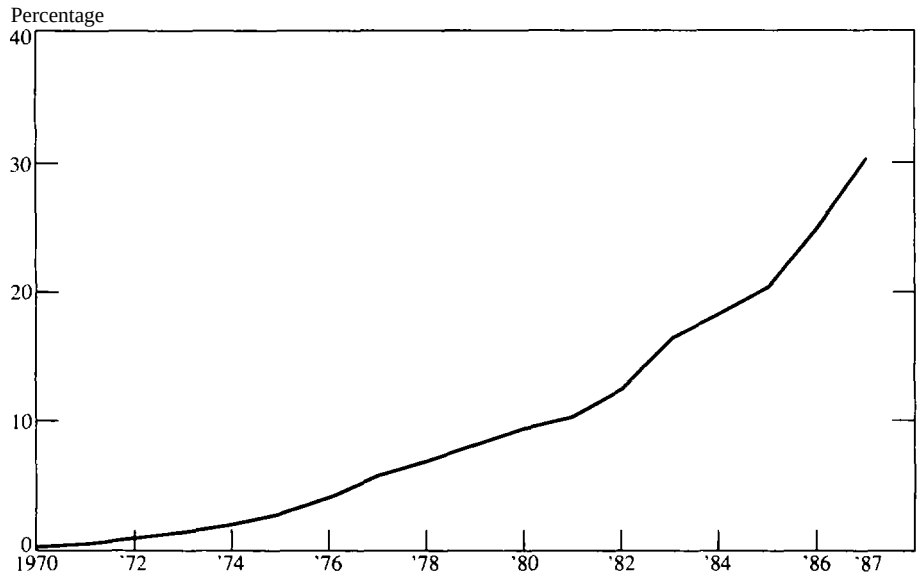
23 See Lore, pp. 3 4 0 to 3-43. For a more technical discussion, see Gail M. Belonsky and Steven D. Meyer, "Floating Rate CMOs: The Floater, the Inverse Floater, and the Residual," ***Mortgage-Backed Securities Research.*** Drexel Burnham Lambert, December 1986.

24 These dangers are illustrated by the estimated $275 million loss suffered by Merrill Lynch in 1987 on a position in stripped securities. See Lore, ***Mortgage-Backed Securities: Developments and Trends,*** pp. 3-38 to 3-40.

25 This is not a perfect measure for a number of reasons. While some CMOs are backed by pass-throughs, others are backed by whole loans that do not conform to agency guidelines. Those CMOs backed by whole loans should be included in a measure of securitization, but this data is not available. Also, this measure does not include the more traditional debt issues by FNMA and FHLMC to finance loans held in their portfolios. Adding this debt to pass-throughs would raise the share of mortgage debt securitized. The reported measure also does not include non-agency pass-throughs.

CHART 6

Agency pass-through securities as a percentage of total residential mortgage debt



Source: Board of Governors, Federal Reserve System, Macro Data Library

year, the rate of securitization has recently approached 60 percent. If this rate continues, the stock of securitized mortgage debt will continue to grow.[26]

Mortgage-backed securities also appear to have helped improve the geographic efficiency of housing finance and to have strengthened the linkage between housing and capital markets. Evidence supporting this conclusion comes from recent studies that point to reduced variation in mortgage rates across regions and to increased sensitivity of mortgage interest rates to changes in capital market rates.[27] Additional evidence is provided by data showing that institutional investors, such as pension funds and mutual funds have been significant purchasers of mortgage securities.

The various types of mortgage-backed securities have made different contributions to this process. Pass-through securities have played the most important role by creating a liquid, national secondary market for conventional and government-insured loans. In addition, pass-throughs have appealed to nontraditional housing investors with a preference for investment securities' rather than whole mortgage loans.

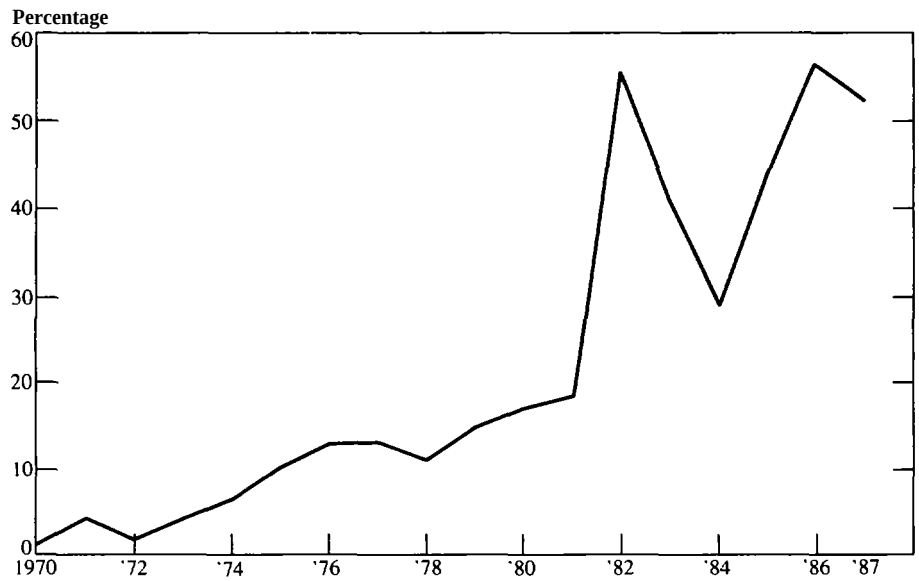
Mortgage-backed bonds and CMOs have served a different function. They overcame some of the problems of the traditional mortgage contract by reducing the uncertainties of cash flows caused by mortgage prepayments. Thus, these types of mortgage securities appeal to a wider

26 Part of the reason for this variability is that adjustable-rate pass-throughs are relatively recent. Before these new pass-rhroughs were created, an increase in the market share of ARMs versus fixed-rate loans would reduce the fraction of originations securitized.

27 See, for example. Howard L. Roth, "Volatile Mortgage Rates—A New Fact of Life?" *Economic Review*, Federal Reserve Bank of Kansas City, March 1988, pp. 16-28. Also, see Stuart A. Gabriel, "Housing and Mortgage Markets: The Post-1982 Expansion." *Federal Reserve Bulletin*, December 1987. pp. 893-903.

CHART 7

Agency pass-through issuance as a percentage of total mortgage originations



Source: *The Mortgage-Backed Securities Marker. Statiscal Annul-1988.* Guy D. Cecala (ed.), Probus Publishing Company, Chicago. IL.

Board of Governors, Federal Reserve System, Macro Data Library, Statistics from the Department of Housing and Urban Development.

range of potential investors than do pass-throughs. At the same time, without the government guarantees or standardization of pass-throughs, these securities do not have much of a secondary market so that the investor may sacrifice considerable liquidity.

Securitization and housing finance: policy issues

Despite its beneficial effects, the securitization of housing finance has raised a number of questions about the proper scope of government involvement in housing finance and the future structure and stability of the financial system. This section discusses the implications of securitization for three public policy issues: the relative roles of government and the private sector in housing, the viability of the S&L industry, and the implications of securitization for financial system risk.

Government's role in housing finance

The expanding role of government in housing finance since the 1930s has led to increasing concern about the desirability and economic efficiency of government programs. This issue has been a particularly important topic of debate during the term of the Reagan administration. The administration has promoted the privatization of housing finance, that is, the reduction of the role of government in housing. This view runs counter to most of the housing legislation passed since the 1930s, which uses government programs to expand the availability and affordability of

housing.

Proponents of privatization question the cost and effectiveness of federal housing policy. They argue that too many resources are devoted to housing and that government subsidies crowd out more productive forms of investment. In contrast, opponents of privatization argue that, in the absence of federal programs, too little housing would be produced and housing would not be affordable.

The privatization issue directly involves the federal housing agencies and their role in the securitization process. Critics of government housing policy point out that the scope of agency activities has expanded far beyond their original intent of providing affordable housing to low income families and supporting the development of the secondary market. These critics note that as much as 80 percent of single-family mortgages conform to FNMA and FHLMC guidelines and so are eligible for securitization by the agencies. Thus, critics contend, federal housing subsidies extend to moderate and upper income families. In addition, critics argue that rather than supporting the secondary market, agency activities dominate the market and prevent the development of a private secondary market.

Most proponents of privatization focus their displeasure on the "agency status" of FNMA and FHLMC. They contend that the agencies have a competitive advantage because of the implicit government guarantee of their activities. Thus, agency competition reduces the profitability of private participants in housing finance who are without government guarantees. Generally speaking, supporters of privatization advocate turning FNMA and FHLMC into private institutions without government guarantees supporting their activities.[28]

In contrast, supporters of current housing policy are generally opposed to a major change in government programs or a change in the status of the agencies. They argue that in the absence of government support, housing availability and affordability would suffer. In this view, scaling back government guarantees would raise housing costs and might impair the liquidity of the secondary market and the integration of housing and capital markets.[29]

Securitization and the viability of S&Ls

A policy concern related to the privatization issue is the future role of S&Ls in housing finance. As discussed earlier, from 1930 to 1970, government housing programs gave S&Ls a central role in housing finance. Since 1970, however, the government-sponsored securitization of housing finance has tended to erode the dominant position of S&Ls. As securitization has broken down geographic barriers to the flow of housing funds and linked housing and capital markets, S&Ls have forced increased competition in mortgage lending. This increased competition has lowered the returns to mortgage lending. In addition, deposit rate deregulation has raised the cost of funds for S&Ls. As a result of these two forces, the spread or profit that S&Ls can earn on their mortgage portfolio has declined.[30]

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28 See, for example, Terry R. Mendenhall, "Setting New Boundaries." *Secondary Mortgage Markers.* FHLMC, Fall 1987, pp. 7-10; and Dennis Jacobe, "Federal Agencies Are Taking Over," in *Savings Institutions,* January 1984, pp. S-41 to S-45.

29 See Michael J. Lea, "Dueling Guarantees." *Secondary Mortgage Markers.* Fall 1986, pp. 22-27.

30 To put this issue into perspective, it must be recognized that this issue is not confined to the thrift industry. Similar concerns have been raised about the impact of securitization on the future of commercial banks both in their domestic and international markets. Thus. the viability of S&Ls is really part of a broader question about the implications of securitization for traditional depository intermediaries. See, *Recent Trends* in *Commercial Bank Profitability,* Federal Reserve Bank of New York. 1986, and *Recent Innovations in International Banking.* Bank for International Settlements. April 1986.

The adverse effects on S&L profitability can be seen more clearly by looking at the variety of functions or services provided by S&Ls. Historically, S&Ls have originated mortgage loans; serviced these loans; assumed the credit, interest rate, and prepayment risk of these loans; and provided liquid savings and transactions accounts to depositors. Securitization and deregulation have combined to alter the profitability of many of these activities. Thus, for example, government insurance of pass-through securities has transferred credit risk responsibilities to the government, reducing S&L earnings. Interest rate risk has been transferred to borrowers through adjustable rate loans and to purchasers of mortgage-backed securities. Deposit rate deregulation and the growth of savings alternatives have eroded any local competitive advantage of thrifts in raising funds.

These changes have led some to speculate that the primary function of S&Ls in the future may be to provide mortgage banking activities such as loan origination and servicing. While this may be an extreme view of the impact of securitization on S&Ls, there is no question that the exclusive focus of S&Ls on mortgage lending is diminishing. This reality is reflected in recent legislation expanding thrift powers beyond mortgage lending and reducing the tax incentives for S&Ls in mortgage lending.

At the same time, however, securitization has had positive effects on thrifts. Holding mortgage-backed securities can provide geographic diversification that makes S&L loan portfolios less sensitive to local economic conditions. In addition, holdings of mortgage-backed securities can provide liquidity to thrift investment portfolios as well as serving as an efficient form of collateral for borrowing. Finally, mortgage-backed securities and derivative securities can help S&Ls manage interest rate risk more effectively by providing hedging instruments or by providing sources of funds that allow better matching of asset and liability maturities.

Risks to the financial system

A third policy concern is the impact of housing securitization on the stability of the financial system. One issue is the effect of securitization on thrift institution incentives to take risk. That is, if the returns to mortgage lending are reduced, thrifts may have incentive to undertake more risky investments with adverse effects on the deposit insurance system. If so, regulatory policies may have to be adjusted to allow for greater supervision or to change thrift incentives through risk-based deposit insurance or capital requirements.

A broader question concerns the relationship between interest rate risk and financial stability. In the past, S&Ls held much of the outstanding mortgage debt and absorbed a good deal of the associated interest rate risk. This proved to be disastrous for many thrifts in the volatile interest rate environment of the early 1980s. With a part of the potential interest rate risk of mortgage lending transferred to borrowers and to other lenders, S&Ls may have less risk exposure but the impact of interest rate volatility on the health of the financial system is unclear. A particular concern to policymakers is investors' understanding of the behavior of the more exotic derivative mortgage securities in an adverse interest rate environment.[31]

A final aspect of risk related to mortgage securities is counterparty risk or fraud. There have been well-publicized instances in recent years in government securities markets where collateral turned out to be inadequate or nonexis-

[31] Federal regulators of banks and thrifts have recently questioned the appropriateness of investments by these institutions in derivative mortgage securities.

tent. In addition to sizable financial loss for individual investors, these events may cause disruptions in the normal functioning of financial markets or the payments system. Since mortgage securities are frequently layered in complex ways, the presence and adequacy of collateral may be difficult to determine in many situations. This problem could be compounded by investors lulled into complacency by the assumption of a government guarantee where none exists.

Summary

The development of mortgage-backed securities has revolutionized housing finance. These securities have allowed the creation of a national secondary market for mortgage loans that has improved the geographic flow of mortgage funds. In addition, these securities have served to improve the linkages between mortgage markets and capital markets and have attracted new investors to mortgage lending.

At the same time, however, the continuing growth and development of the market for mortgage securities has raised important questions about the appropriate role of the government in the securitization process, the viability of traditional housing lenders, and the impact of mortgage securitization on risk and stability in the financial system.

The Latin American Debt Problem And U.S. Agriculture

By Mark Drabenstott, Alan Barkema, and David Henneberry

The 1980s have seen chronic debt problems in many parts of the world. Two of the most publicized debt problems have been in U.S. agriculture and Latin American countries. The two debt situations are often compared because the debt is big in both cases and both problems were born in the early 1980s. Currently, however, the U.S. farm debt crisis is rapidly receding while the Latin debt problem has shown little overall improvement.

Does a common bond bring these two disparate debt problems together? This article concludes that U.S. agriculture and Latin countries do share some important common ground—a steady stream of agricultural trade between the United States and Latin America. Both U.S. agriculture and Latin economies stand to benefit from macroeconomic and trade policies that encourage global economic growth.

The article develops these conclusions in four sections. The first section explores the historical roots of the U.S. farm and Latin debt problems. The second section assesses the current financial situation in U.S. agriculture and indebted Latin economies. The third section details the important trade linkage between U.S. agriculture and Latin America. The final section explores the macroeconomic and trade policy elements of defusing the Latin debt problem—policy developments that also promise to be in the interest of U.S. agriculture.

The evolution of the Latin American and U.S. farm debt problems

The simultaneous development of debt problems in Latin American countries and the U.S. farm economy in the early 1980s goes beyond mere coincidence. Development of the two debt problems in these regions can be traced to readily

This article is based on a paper presented to the annual Congress of the Latin American Studies Association in New Orleans, March 17, 1988. **Mark Drabenstott is an assistant vice president and economist and Alan Barkema is an economist at the Federal Reserve Bank of Kansas City. David Hennebeny is an assistant professor of agricultural economics at Oklahoma State University.** **Landell Froerer, a research associate at the Federal Reserve Bank of Kansas City, assisted in this research.**

available credit, low borrowing costs, and optimistic expectations of future incomes. A sea change in world macroeconomic conditions at the turn of the decade. however, precipitated a repayment crisis in both regions. Borrowers in Latin America and on **U.S.** farms were caught in a double bind in the early 1980s as global recession restricted export opportunities and incomes, while interest rates shot skyward.

The 1970s debt expansion

Total debt virtually exploded in the 1970s in both Latin America and in **U.S.** agriculture (Chart I). Total external, long-term debt in Latin America and the Caribbean grew sixfold from nearly $28 billion in 1970 to over $172 billion in 1980, representing an average annual growth rate of 20 percent.[1] Debt expansion in **U.S.** agriculture was nearly as extraordinary, growing at an annual rate of 12 percent and tripling from $49 billion to $152 billion during the decade. Three interrelated factors appear primarily responsible for the rapid expansion of debt in the two regions during the 1970s: low real borrowing costs, strong income growth, and the oil price shock of 1973-74.[2]

Low borrowing costs. The real—or inflation adjusted—cost of borrowing was very low during much of the 1970s. In fact, real interest rates charged on Latin American and **U.S.** farm debt fell to zero and below during the decade (Chart 2).[3] Rising inflation without fully compensatory increases in nominal interest rates effectively reduced borrowers' real debt burdens and encouraged further debt acquisition by lowering the value of debt service payments and outstanding principal. In real terms, for example, Latin American long-term debt and **U.S.** farm debt grew at annual rates of only 12 percent and 5 percent, respectively, well below nominal growth rates in debt during the decade (Chart I).

Strong income growth. A second factor that contributed to the explosion of debt in Latin America and **U.S.** agriculture was strong income growth in both regions. The macroeconomic policies that contributed to the inflationary excesses of the 1970s also promoted growth in world trade and incomes, leading to optimistic expectations that future incomes would be sufficient to service newly acquired debt.

One rule of thumb suggests that a borrowing nation's financial position is stable so long as export earnings are growing at a rate greater than the interest rate charged on its loans. Otherwise, the burden of servicing a growing stock of debt would eventually exhaust the country's ability to

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1 Latin American long-term, external debt rather than total external debt are reported here because data on Latin American short-term debt are not available for years prior to 1980. Long-term debt represented 71 percent of total external debt in 1980 and 88 percent of total external debt in 1986. Caribbean nations are included in the Latin American debt totals throughout the article.

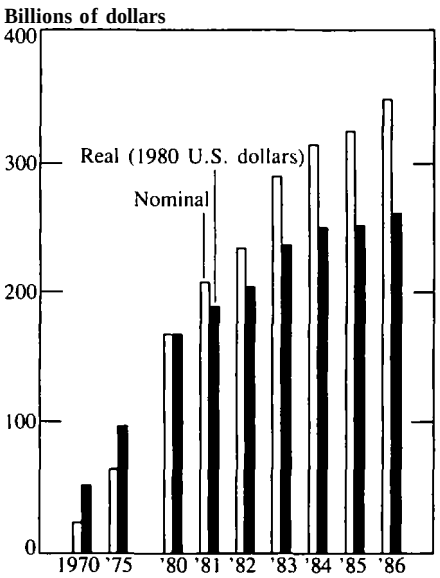
2 While these factors suggest comparison between regions, an important difference is that U.S. farm debt is owed by individuals whereas a significant part of Latin American debt is owed by sovereign governments.

3 Borrowing decisions are affected by the real interest rate, equal to the difference between the nominal interest rate and the rate of inflation expected to prevail (ex ante) over the term of a loan. The ex post real interest rate, equal to the difference between the nominal interest rate and the rate of inflation that prevailed (ex post) during the term of a loan, is not known until after the borrowing decision has been made and therefore cannot affect the borrowing decision. The ex post real rate is offered here as an estimate of the ex ante real rate.

Trends in the real cost of U.S. farm debt are shown by subtracting the annual inflation rate in the United States. measured by the **GNP** deflator, from the average annual interest rate charged on farm mortgages by Federal Land Banks, the largest U.S. farm mortgage lender. Similarly, trends in the real cost of Latin American debt are found by subtracting an inflation rate from the nominal interest rate charged on Latin loans. The international interest rate used in the calculations is the London Interbank Offered Rate (LIBOR), the rate to which much of Latin America's debt is tied. The annual percentage change in the value of exports, the source of income that Latin America must use to repay its debt. is subtracted from LIBOR to determine the real cost of Latin debt.

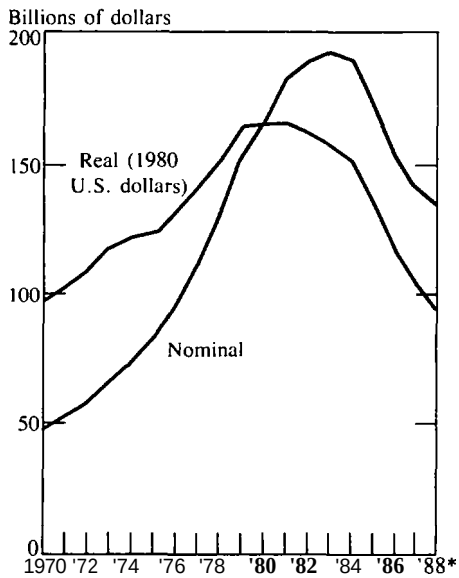
CHART 1

Panel A
Latin American long-term debt



Source: *World Debr Tables,* External Debt of Developing Countries, The World Bank.

Panel B
Total U.S. farm debt



Source: USDA, Economic Research Service. (Excluding Commodity Credit Corporation Loans)

*Forecast

pay.[4] Booming Latin American export growth clearly met this criterion throughout most of the 1970s. Real annual growth in Latin American exports averaged 13 percent through the decade, well in excess of the of the real London Interbank Offered Rate (LIBOR). Moreover, real gross domestic product (GDP) in the Latin American countries surged ahead at a robust average annual rate of 6 percent.

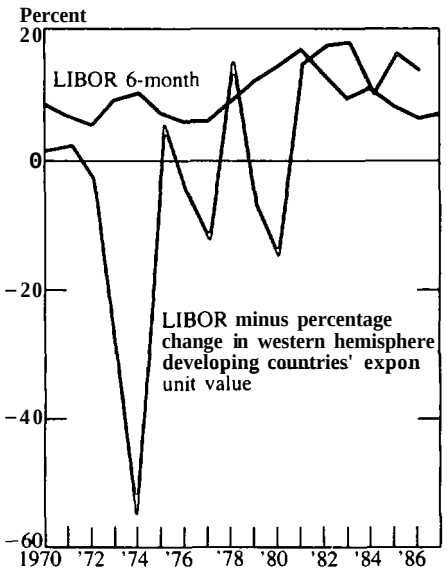
Strong growth in foreign incomes also contributed to booming U.S. agricultural trade and farm income. Rising incomes in Latin America and other parts of the developing world, a generally weak U.S. dollar, and insufficient grain supplies elsewhere combined to push up U.S. farm exports. U.S. agriculture's real trade balance increased tenfold during the 1970s, representing an annual growth rate of nearly 25 percent. And surging export demand for U.S. farm products boosted the total real rate of return to U.S. farm production assets to an average annual rate of nearly 9 percent, nearly triple the average rate of return in the previous decade.

Oil price shocks. A sharp increase in world oil prices was the third factor that contributed directly to debt expansion in Latin America and somewhat indirectly to debt expansion in U.S. agriculture in the 1970s. An abrupt quintupling in world oil prices in 1974 contributed to higher inflation and lower real borrowing costs for borrowers in Latin America and U.S. agriculture. In addition,

[4] See William R. Cline, *International Debr: Systemic Risk and Policy Response,* Institute for International Economics, Washington, D.C., 1984, p. 7; and Brian Kettel and George Magnus, *The International Debt Game,* Ballinger Publishing Company, Cambridge, Massachusetts, 1986. p. 81.

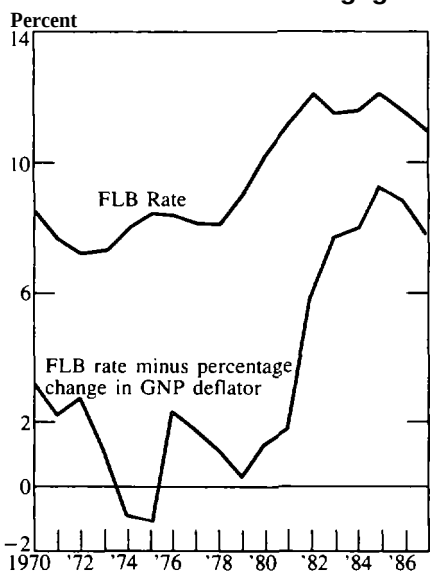
CHART 2

Panel A
International interest rates



Sources: *International Financial Statistics.* International Monetary Fund.

Panel B
Federal Land Bank farm mortgage rates



Sources: Farm Credit System; Board of Governors, Federal Reserve System.

See Footnote 3.

OPEC's annual oil income increased from about $30 billion prior to 1973 to about $120 billion in 1974. But only a portion of OPEC's windfall, roughly $50 billion, was spent; the balance of $70 billion was saved.[5] That $70 billion represented a sizable pool of funds from which banks subsequently increased lending, including more loans to developing countries to maintain living standards and promote economic growth.

The 1980s debt problem

The tables turned abruptly for Latin America and U.S. farm borrowers in the early 1980s. Real borrowing costs jumped while incomes fell sharply, leading quickly to a debt repayment crisis for both regions.

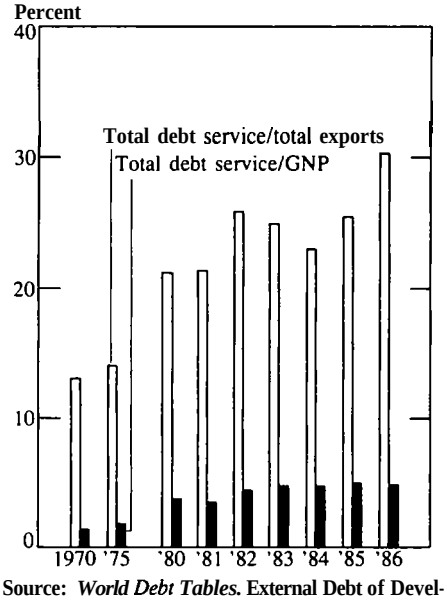
Rising borrowing costs. Just as U.S. macroeconomic policy had contributed to the inflationary excesses of the 1970s, an abrupt change in macroeconomic policy by the United States and other western nations resulted in sharply lower inflation in the 1980s. Monetary restraint followed by an expansionary U.S. fiscal policy characterized by record-large federal budget deficits pushed interest rates sharply higher in nominal terms and, to an even greater extent, in real terms.

Real debt burdens for Latin American countries and U.S. farmers escalated with the sharply higher real interest rates. The real burden of Latin debt, measured by adjusting LIBOR for changes in Latin export prices, rose from an average of less than zero in the 1970s to double digits in the

5 Kettel and Magnus, p. 40.

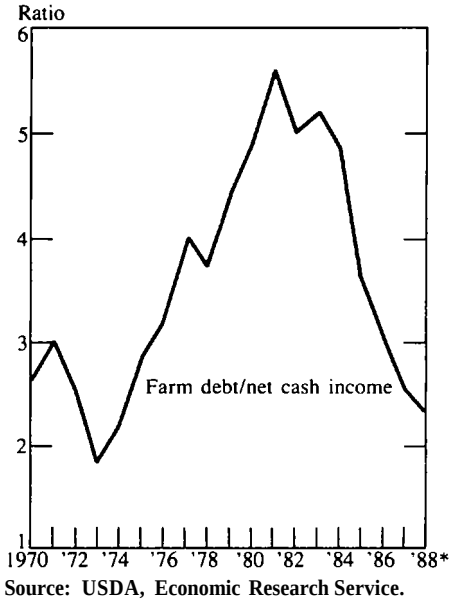
CHART 3

Panel A
Latin American debt service measurements



Source: *World Debt Tables.* External Debt of Developing Countries, The World Bank.

Panel B
United States farm debt/net cash income



Source: USDA, Economic Research Service.
*Forecast

early 1980s. U.S. farmers also realized sharply higher real debt costs as real interest rates on farm loans rose from less than 2 percent in the late 1970s to 9 percent in the mid-1980s (Chart 2).

Falling income. Just as borrowing costs began a rapid ascent, Latin American countries and U.S. agriculture encountered sharply lower incomes. Global economic growth fell at the turn of the decade, accompanied by a slump in world trade. From 1981 through 1984, Latin American real GDP and real exports fell at an average annual rate of 0.1 percent and 6.4 percent, respectively. The slower economic growth was due in part to macroeconomic policy changes in many Latin American countries. Fast growth policies of the 1970s—which encouraged rapid debt accumulation—were no longer sustainable. At the same time, world demand and prices slumped for key Latin American export commodities, including copper, tin, and iron ore.

U.S. agriculture's exports were similarly affected by a combination of lackluster growth in foreign incomes, the rising value of the dollar, and growing global stockpiles of grain. The industry's real trade surplus fell 83 percent from 1981 through 1986. Plummeting U.S. farm exports were quickly reflected in sharply lower farm earnings.

Escalating repayment problems. In the early 1980s, borrowers in both hemispheres found themselves squeezed between rising debt service obligations and falling incomes. Rapidly rising debt-to-income or debt service-to-income ratios in Latin America and in U.S. agriculture are a direct measure of the repayment crisis that developed for borrowers in each region at the turn of the decade (Chart 3). Latin America's annual debt service requirement rose modestly from just

over 13.2 percent of the region's exports of goods and services in 1970 to 14.3 percent in 1975. But by 1982, Latin America's debt-service ratio had nearly doubled to 26.1 percent.[6]

Similarly, U.S. farm debt increased from 2.7 times net cash income in 1970 to 2.9 times cash income in 1975. But the sector's debt-to-net cash income ratio nearly doubled to 5.6 by 1981.[7] In summary, expectations of continued low-cost debt and high incomes formed during the 1970s were proven wrong in the 1980s. The inevitable result was that Latin American and U.S. farm borrowers were trapped between burgeoning debt costs and tumbling incomes.

Assessing the current problem

Following the rapid financial deterioration of the early 1980s, how severe are the farm and Latin debt problems today? They appear to be on different paths to recovery. U.S. farmers are in the midst of recovery, while Latin economies have made only limited gains at best. This section surveys financial conditions in each and puts forward some reasons for the disparity. In both cases, the debt problems are approached from the perspective of borrower, not lender.

Recovery in U.S. agriculture

The U.S. farm debt problem faded in 1987 as U.S. agriculture began a strong, broadly based recovery. Record farm income, stabilizing land values, and rebounding exports all signaled the end of the farm recession in the United States. Farm lenders reported fewer loan problems, and the number of farm business failures was down.

What brought about the farm financial improvement in the United States? Three factors appear principally responsible: strong incomes underpinned by record government expenditures, financial adjustments in the industry, and some recovery in farm exports.

Strong farm income. U.S. farm income was record high the past two years, giving U.S. farmers considerable financial breathing room. Even after adjusting for inflation, 1987 net farm income was the highest since 1979.

Three factors explain the record farm income. The U.S. government provided nearly $50 billion of support the past two years. The livestock industry, which accounts for about half of U.S. agriculture's gross revenue, had three years of excellent returns based mainly on market factors. Finally, U.S. farmers have slashed expenses the past five years, bolstering bottom lines and improving competitiveness in world markets.

Financial adjustments. Healthy farm incomes and a general decline in U.S. interest rates made significant financial adjustments possible for U.S. farmers. U.S. farmers restructured balance sheets and paid down debt more substantially than ever. Farm debt fell nearly $50 billion—or more than a fourth—between 1983 and 1987 (Chart 1). U.S. commercial farm lenders absorbed a portion of that reduction as loan losses. But most of the decline can be attributed to the unique circumstances in which producers of nearly all farm commodities enjoyed strong incomes the past three years.

Rebounding farm exports. Improving exports

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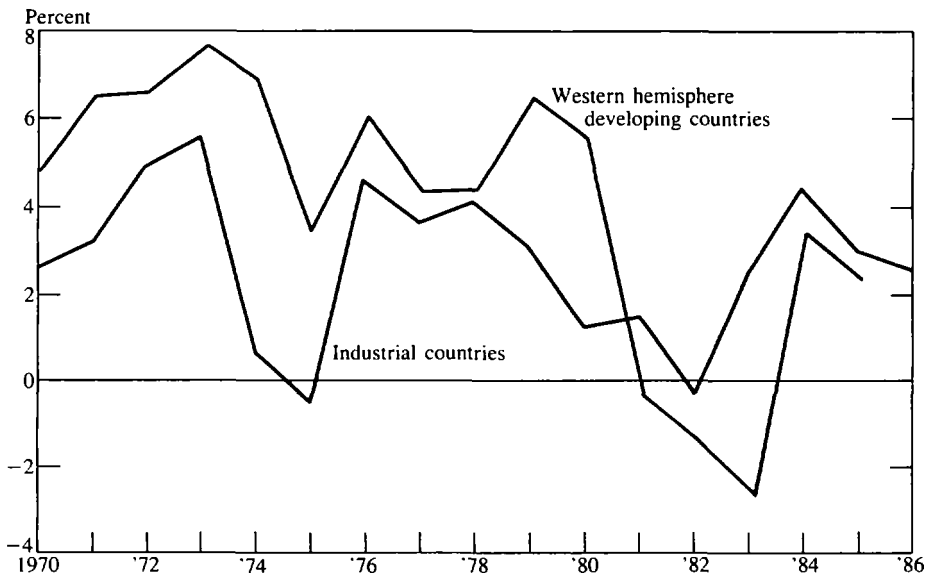
6 This debt-service ratio, from the World Bank, includes both interest and principal. Another measure is the ratio of total interest payments to exports of goods and services. This alternative measure, from the IMF, peaked at 32.3 percent in 1982 and then declined to 22.6 percent in 1987.

7 Data on total debt in U.S. agriculture are used here because they are much more reliable than estimates of the industry's total annual debt service obligation. The industry's debt service-to-net cash income ratio likely increased even more rapidly than the debt-to-net cash income ratio due to rising interest rates. For example, assuming average annual principal repayment rates of 3 percent on real estate debt and 15 percent on nonreal estate debt and average interest rates on outstanding debt of 8 percent in 1975 and 11 percent in 1981, U.S. agriculture's estimated debt service-to-net cash income ratio more than doubled from 0.5 in 1975 to 1.1 in 1981.

CHART 4
Growth of real GDP



Source: *International Financial Srarisrics.* **International Monetary Fund, Various Issues.**

are the final signal of a farm recovery in the United States. After declining for six years, U.S. farm export volume rebounded nearly a fifth in 1987. A weaker dollar, cuts in U.S. support prices, and some pickup in export demand contributed to expanded sales. But government played a part here, too. The Export Enhancement Program—another term for export subsidies—played a key role in boosting exports of such commodities as cotton, rice, and wheat.

In short, strong farm income, successful financial restructuring, and some pickup in farm exports herald the end of the U.S. farm debt crisis. The U.S. government has been an active participant underpinning the recovery. The Latin American economies have not had so generous a backstop.

The lingering Latin debt problem

The persistence of the Latin debt problem appears to be caused by weak economies and anemic exports, relatively low commodity prices that keep real interest rates high, and insufficient financial restructuring on the part of borrowers and lenders.

Weak exports and economies. The 1981-82 world recession dealt an especially hard blow to Latin America as real economic growth fell sharply and debt burdens grew more onerous. The strong economic recovery in the United States and other western countries that began early in 1983 helped to pull Latin economies back into positive growth (Chart 4). But since then, real growth in Latin America has been only about 3 percent, roughly half its level for the 1970s. Sluggish income growth may constrain demand for imports and ease debt service difficulties. Nevertheless, more robust export-led growth will likely be required for Latin America to significantly reduce its debt problem.

Total Latin American external debt remains

high and the debt service burden is still heavy. In constant 1980 U.S. dollars, total external debt for the region grew from $285 billion in 1982 to $301 billion in 1986. Latin America's debt service obligations as a percent of its exports of goods and services grew to 30 percent in 1986 compared with 26 percent in 1982.

The real problem is that exports have not grown enough to allow the Latin countries to pay down debt. In fact, Latin exports of goods and services actually fell in 1985 and 1986, the last years for which data are available. In real terms, exports fell more than 7 percent in 1985 and more than 15 percent in 1986. Much of that decline is due to generally weak prices for the primary commodities Latin America exports, namely oil, metals, and agricultural products. In addition, generally moderate growth in the industrial countries the past two years has not fueled higher demand for Latin American exports.

Even more disturbing than the recent economic weakness in Latin America is the prospect for continued sluggish growth ahead. Latin economies face the ongoing problem of trying to balance short-term, debt-correction measures with steps to foster long-term growth. To bolster their external accounts and service more debt, Latin countries have enacted adjustment measures to discourage consumption and restrict imports as part of a package negotiated with the International Monetary Fund (IMF) and private lenders. The short-run correction measures have been quite successful. Per capita consumption has declined at an annual rate of nearly 1 percent in the 1980s, translating into an even sharper 6 percent annual decline in imports (Table 1). In spite of the export problems just discussed, therefore, most Latin countries have made dramatic progress in their current accounts.

Offsetting these short-run current account gains, however, has been a marked falloff in investment. In effect, long-run growth has been sacrificed to meet short-run obligations. Due to the overshadowing debts that most Latin countries already have, most international lenders have grown extremely cautious about new loans. Net new loans to the region slowed to only $1.5 billion in 1985 and $2.4 billion in 1986 compared with $23.7 billion in 1981 and $12.1 billion in 1982.[8] The net result is an annual investment in Latin America that has declined more than 4 percent annually in the 1980s. As a percent of GDP, investment has fallen from 23.4 percent in 1980 to 17.5 percent in 1987. While the 1970s investment pace was unsustainable, the slowdown in capital formation nevertheless poses fundamental questions about long-run growth prospects.

Weak commodity prices. Weak commodity prices have been key to the disappointing performance of Latin American exports through most of the 1980s. Primary commodities account for a major share of Latin American exports, and their prices have been generally weak in recent years. Oil prices, important to Mexico and Venezuela, are off more than 40 percent from late 1985 levels, with most of the decline occurring in 1986. A significant recovery in metals and agricultural commodities was a heartening development in 1987. Metals prices did rebound in 1987 and are now about 10 percent above 1980 levels. Raw agricultural materials, weak through 1986, also rose appreciably in 1987 and are now slightly above 1980 levels.[9]

The weakness in most commodity prices cuts the value of exports, as already discussed. But the decline in Latin America's terms of trade has an even more devastating effect on debt service. In brief, weak prices for Latin exports sharply raise the real interest rate facing the region. Even though market rates have declined the past few years, that nominal fall has been more than off-

8 **Source:** ***World Debt Tables*****. External Debt of Developing Countries, The World Bank, 1987.**

9 **Source:** *International Financial Statistics*, **International Monetary Fund, 1987 Yearbook.**

TABLE 1
Financial and economic conditions of Latin debtors

Country	Debt Outstanding, 1987[a] Total (US $ Billion)	Debt Outstanding, 1987[a] Of Which Private Source (Percent)	Debt Service 1987-89[b] (US $ Billion) Total	Debt Service 1987-89[b] (US $ Billion) Of Which Interest	Debt Ratios Percent[c] EDT/ CNP, 1986	Debt Ratios Percent[c] INT/ XCS, 1987	Trade Balance[d] (US $ Billion) 1983-87 Annual Average Value	Trade Balance[d] (US $ Billion) Balance in 1982	Average Annual Growth Rates 1980-87[d] (Percent) GDP	Exports	Imports	Investment	Per Capita Consumption
Argentina	49.4	85.8	23.7	7.9	65.8	33.1	3.1	2.3	0.0	1.4	−11.0	−9.5	−1.2
Bolivia	4.6	26.7	1.6	0.6	118.8	31.5	0.0	0.3	−3.5	−0.3	−2.4	−2.6	−5.1
Brazil	114.5	75.5	61.4	20.0	41.0	30.2	8.6	−0.9	3.4	3.2	−4.4	−1.1	1.1
Chile	20.5	83.2	9.8	4.2	138.8	29.5	0.5	−0.4	0.9	4.1	−6.8	−4.6	−2.2
Colombia	15.1	49.4	8.5	3.1	46.8	16.6	−0.3	−2.4	2.8	8.0	−3.3	0.9	0.2
Costa Rica[e]	4.5	50.8	2.4	0.7	118.7	18.9	−0.1	−0.1	1.5	2.1	−2.4	1.3	−1.4
Ecuador[e]	9.0	70.2	4.3	1.8	83.5	24.4	0.6	0.6	1.4	5.9	−2.6	−4.7	−2.2
Mexico	105.0	86.2	44.9	22.2	83.8	32.7	9.1	6.2	0.3	6.4	−7.7	−6.7	−2.7
Peru	16.7	53.2	7.9	2.2	62.4	29.0	0.3	−0.4	0.7	−0.6	−5.7	−12.6	−0.2
Uruguay[e]	3.8	80.1	1.3	0.7	63.4	15.3	0.2	−0.1	−1.4	−0.1	−8.1	−13.8	−2.4
Venezuela	33.9	99.3	15.9	6.6	70.8	22.5	3.9	3.6	−0.7	−0.9	−5.7	−3.4	−4.6
Total	377.0	79.4	181.7	3.8	60.4	28.6	25.9	8.7	1.5	3.0	−6.1	−4.3	−0.9

[a] Estimated total external liabilities. including use of IMF credit.

[b] Debt service is based on long-term debt and terms at yearend 1986. It does not take into account new loans contracted or debt reschedulings signed after that date.

[c] Total external debt relative to GNP. Interest due in 1987 on long-term debt outstanding at the end of 1986. relative to exports of goods and all services.

[d] Data for 1987 are preliminary estimates. Growth rates (least squares) are computed from time series in constant prices.

[e] Yearend 1986 debt.

Source: World *Debr Tables.* External Debt of Developing Countries. The World Bank. 1987.

set by weakness in the region's terms of trade. The net effect is that Latin America's real interest rate remains at double-digit levels (Chart 2).

Slow financial adjustments. Unlike U.S. agriculture, where financial restructuring has moved along fairly rapidly the past three years, Latin debt adjustments have emerged much more slowly. The slowness stems from the very large potential losses at stake and from the ongoing weakness in the Latin economies. The past year, attention has focused on steps by U.S. banks to set aside sizable loan-loss reserves, and on the continued emergence of debt swap agreements.

One of the most heralded Latin debt adjustment mechanisms is debt exchange. The arrangement takes one of two forms. In a debt swap, Latin loans are exchanged at discount for higher yielding bonds issued by Latin countries and backed by U.S. Treasury securities. Mexico conducted a debt swap auction in March 1988, but the auction met with only limited success. In a debt-equity swap, Latin loans are exchanged at discount for an equity stake in a Latin corporation or business. This market continues to develop slowly, and U.S. banks do appear to be considering it more seriously. Overall, the financial markets are developing new channels for restructuring, but there is a long road ahead.

Overall, the Latin American debt problem remains serious, with only limited improvement evident. Total debt remains high, Latin economies are weak, exports are hampered by low commodity prices, and real interest rates to the region are still high. The magnitude of the potential

TABLE 2
Latin American debt held by U.S. banks compared to assets and capital (billions of dollars)

	1982				1987			
	9 Money Center	Next 15 Large	'All Others	Total	9 Money Center	13 Other Large	All Others	Total
Total Latin Loans	50.0	16.4	15.4	81.8	48.8	13.0	11.1	73.0
Total Assets*	588	253	420	1,261	626	284	723	1,633
	(8.51)	(6.47)	(3.68)	(6.49)	(7.80)	(4.59)	(1.53)	(4.47)
Total Capital**	29.0	13.5	28.1	70.6	51.5	23.9	53.8	129.2
	(172.52)	(121.25)	(54.96)	(115.92)	(94.83)	(54.51)	(20.61)	(56.47)

*In parentheses, Latin loans as percent of total assets.

**In parentheses, Latin loans as percent of total capital.

Source: "Country Exposure Lending Survey." Board of Governors of the Federal Reserve System, June 1, 1983 and April 22, 1988.

losses has slowed the restructuring process, but some new channels for adjustment are developing.

There is one perspective from which the Latin debt crisis has shown greater improvement. That is the perspective of U.S. banks. The exposure of the U.S. banking system to Latin debt problems has declined since the early 1980s, as Latin debt held by U.S. banks has edged lower and the banks have strengthened their capital positions. Latin debt held by U.S. banks declined about 11 percent from 1982 through 1987 (Table 2). As total Latin loans at U.S. banks were shrinking modestly, the banks boosted their total capital about 85 percent. As a result, Latin loans as a percentage of total bank capital was halved from 116 percent to 56 percent, over the five-year period.

The exposure of the largest money center banks to Latin loan problems has not fallen as sharply as for smaller banks. The decline in Latin debt held by the largest money center banks—less than 3 percent—was disproportionately smaller than the decline at other banks. The money center banks took major steps to set aside loan loss reserves against their Latin American loans in 1987, however. Led by Citibank, U.S. money center banks made loan loss provisions of 25 to 30 percent of Latin loans. Still, at 95 percent, Latin debt as a percentage of total capital at the money center banks remained much higher than at the smaller banks. On balance, U.S. banks have made notable progress in a long process of addressing problem loans in Latin America.

Common ground: the importance of Latin America to U.S. agriculture

Despite contrasting improvement in U.S. farm and Latin debt problems, the two regions do have an important common bond: a strong, well-established flow of agricultural trade. Maintaining healthy bilateral trade between the United States and Latin America is clearly in the interests of both U.S. farmers and Latin American economies.

This section focuses on the linkage between growth in U.S.-Latin American trade, growth in Latin American incomes, and Latin America's debt problem. First, the relative importance of

TABLE 3
Total U.S. agricultural exports, agricultural exports to Latin America, and Latin America as a percent of total agricultural exports, 1970-86
(millions of dollars)

Year	U.S. Agricultural Exports to Latin America	Agricultural Exports to Latin America as a Percent of Total	Total U.S. Agricultural Exports
1970	688	9	7,259
1971	774	10	7,693
1972	872	9	9,401
1973	1,692	10	17,680
1974	2,565	12	21,945
1975	2,280	10	21,859
1976	1,943	8	22,978
1977	2,217	9	23,636
1978	3,158	11	29,382
1979	3,684	11	34,749
1980	6,172	15	41,233
1981	6,367	15	43,339
1982	4,438	12	36,627
1983	5,211	14	36,099
1984	5,263	14	37,804
1985	4,224	15	29,041
1986	3,639	14	26,046
1987*	4,007	13	31,596

*Preliminary
Source: U.S. Department of Agriculture, Foreign Agricultural Trade of the United States, Calendar Year Supplements, 1970-86.

U.S.-Latin American agricultural trade to both regions is considered. Then the relationship between agricultural trade growth and income growth in Latin American countries is explored. The linkage between agricultural trade and income is important to a discussion of the Latin American and U.S. farm debt problems. Agricultural trade is important to the economies of the heavily indebted Latin American nations and to the U.S. farm economy.

U.S. and Latin American farm trade linkages

Latin America is the third largest regional market for U.S. farm exports, with annual purchases less than those of only Asia and western Europe. And Latin America's importance to U.S. farmers is growing. In 1970, Latin America purchased $688 million worth of U.S. agricultural exports, or 9 percent of that year's total U.S. farm exports. By 1986, U.S. agricultural exports to

TABLE 4

Total U.S. agricultural imports, agricultural imports from Latin America, and Latin America as a percent of total agricultural imports, 1970-86 (millions of dollars)

Year	U.S. Agricultural Imports from Latin America	Agricultural Imports from Latin America as a Percent of Total	Total U.S. Agricultural Imports
1970	2,254	39	5,770
1971	2,236	38	5,823
1972	2,519	39	6,467
1973	3,023	36	8,419
1974	4,045	40	10,221
1975	3,611	39	9,293
1976	4,330	39	10,966
1977	5,668	42	13,438
1978	6,098	41	14,805
1979	6,962	42	16,724
1980	7,255	42	17,366
1981	6,554	39	16,772
1982	5,652	37	15,341
1983	6,177	37	16,627
1984	7,176	37	19,334
1985	7,639	38	19,968
1986	8,229	39	21,051
1987*	8,018	36	22,104

*Preliminary

Source: U.S. Department of Agriculture, Foreign Agricultural Trade of the United States, Calendar Year Supplements, 1970-86.

Latin America—primarily wheat, corn, soybeans, and beef—had increased to $3.6 billion, bringing Latin America's share of total U.S. farm exports to 14 percent (Table 3). Thus, Latin America's importance as an export market for U.S. agricultural products has increased in relative as well as absolute terms.

In addition to being an important market for U.S. agricultural exports, Latin America is the single most important supplier of U.S. farm imports. In 1970, the United States imported $2.3 billion of agricultural products from Latin America, 39 percent of total U.S. agricultural imports (Table 4). Although Latin America's share of total U.S. agricultural imports in 1986 was unchanged at 39 percent, imports from Latin America, including large quantities of coffee and orange juice, had increased to $8.2 billion.

The agricultural trade of the four most heavily indebted Latin ,American countries, Mexico, Brazil, Venezuela, and Argentina, is especially important to the United States. Mexico has been

TABLE 5

Total U.S. agricultural exports to Latin America with rankings of the five largest purchasers, 1970-87 (millions of dollars)

Country	Agricultural Exports
1970	
Total Latin America	688
Mexico	156
Venezuela	98
Brazil	68
Colombia	39
Jamaica	35
1980	
Total Latin America	6,172
Mexico	2,490
Venezuela	701
Brazil	680
Chile	320
Peru	316
1987*	
Total Latin America	4,007
Mexico	1,273
Caribbean	893
Venezuela	552
Central America	403
Brazil	335

*Preliminary
Source: U.S. Department of Agriculture, Foreign Trade of the United States, Calendar Year Supplements, 1970-86

TABLE 6

Total U.S. agricultural imports from Latin America with rankings of the five largest suppliers, 1970-87 (millions of dollars)

Country	Agricultural Imports
1970	
Total Latin America	2,254
Brazil	536
Mexico	513
Colombia	199
Dominican Republic	166
Argentina	118
1980	
Total Latin America	7,255
Brazil	2,019
Mexico	1,059
Colombia	1,025
Dominican Republic	454
Guatemala	373
1987*	
Total Latin America	8,018
Mexico	2,098
Brazil	2,005
Colombia	805
Ecuador	471
Guatemala	394

*Preliminary
Source: U.S. Department of Agriculture. Foreign Trade of the United Slates, Calendar Year Supplements, 1970-86

the largest Latin American importer of farm products from the United States every year since 1970, and Brazil and Venezuela have ranked second or third (Table 5). Together, these three countries accounted for about 54 percent of U.S. farm exports to Latin America, or 7 percent of total U.S. agricultural exports in 1987. Mexico and Brazil have also been the largest Latin American exporters of agricultural products to the United States every year since 1970. Together, these two countries accounted for over half of all U.S. agricultural imports from Latin America, or 19 percent of total U.S. agricultural imports last year (Table 6). Though Argentina has not ranked among the top five Latin American countries in direct agricultural trade with the United States in recent years, Argentina's presence in world markets is well known to American farmers. Argentina is one of the world's most efficient producers of wheat, corn, and soybeans and competes directly with the United States in world grain and oilseed markets. Similarly, Brazilian farmers compete directly with U.S. farmers in the world soybean market.[10] Thus, the most heavily indebted Latin American countries are also important participants in world agricultural trade.

More robust income growth in Latin American economies would likely be of benefit to U.S. agriculture as well as to the Latin American countries themselves. Larger Latin incomes resulting from stronger growth in net exports would ease the debt servicing problems of Latin American borrowers. Because most Latin economies are heavily dependent on agricultural trade, however, expansion in agricultural exports from Latin American countries is a prerequisite of more rapid income growth in the region. And growing exports of Latin American farm products are likely to compete directly with U.S.-produced goods in selected markets. Therefore, some observers of U.S. agriculture are concerned about the current and future competitive threat posed by Latin American countries. They argue that agricultural development there will only reduce the U.S. share of world markets. But two factors mitigate against this argument and tend to make free trade beneficial for both parties.

First, there is an inherent difference in agricultural productive capabilities. The main agricultural production area in the United States specializes in temperate zone commodities, such as corn, wheat, soybeans, and cotton. The main Latin American production zone specializes in tropical agricultural commodities, such as fruits, vegetables, and citrus. There are some important exceptions. Sunbelt states such as Florida and Texas are likely to compete directly with South American fruit and citrus. Argentina is an efficient, though low-volume, producer of wheat, corn, and soybeans. And U.S. soybean growers will face some threat from soybeans grown in the cone region of Brazil. That region is becoming a significant producer of soybeans, although it remains uncertain how and when its full potential will be realized and thus how much it will threaten U.S. growers in the future.

Second, rising incomes in Latin America will lead to greater demand for U.S. feed grains. Greater demand for meat products—beef, pork, and poultry—is likely to accompany rising Latin incomes. Greater beef output could be achieved through grazing rangeland. But any increase in pork and poultry production will lead to larger feed grain imports, quite likely from the United States.

Taken together, different comparative advantages in crop production and the potential for greater trade in feed grains suggest that agricultural trade growth will benefit both regions.

10 See Alan Barkerna and Mark Drabenstott, "Can U.S. and Great Plains Agriculture Compete in the World Market?" *Economic* Review, Federal Reserve Bank of Kansas City, February 1988. pp. 3-17.

Whether trade benefits are realized may depend importantly on the future course of agricultural and trade policies in both regions. Pursuit of protective agricultural and trade policies in the United States and Latin countries will diminish agricultural trade opportunities. On balance, therefore, policies that maintain a robust trading relationship between the United States and Latin America serve the long-run interests of both regions, even though competition in both foreign and domestic markets accompanies free trade.

Easing debt adjustment in the future

Latin America clearly faces an ongoing challenge in moving from short-run debt management to long-run prosperity. U.S. agriculture, although much more successful in addressing its debt crisis, also faces significant problems in finding long-run prosperity. In both cases, adjustment costs will continue to mount unless transition is made from debt restructuring to long-run growth; Especially for Latin America, continued negotiations between lenders and Latin borrowers remain to be made before the problems start to fade.

But broader policy issues will transcend those individual decisions. Macroeconomic policy, trade policy, and agricultural policy together will create the stage on which Latin debts get resolved. The directions policymakers take will have enormous effect on the ultimate cost of the debt adjustments and the eventual success of those adjustments. And, coincidentally, the very same policies will in large measure determine U.S. agriculture's future.

Vital links, therefore, connect Latin America and U.S. agriculture. Not only do they have solid trade ties, they also have a great mutual interest in a sound policy package that will promote long-run prosperity. This section briefly considers the potential debt adjustment costs that may lie ahead and then suggests a package of macroeconomic, trade, and agricultural policies that would benefit both Latin America and U.S. agriculture.

Debt adjustment costs

A relatively small portion of U.S. agriculture's debt adjustment cost apparently remains. The U.S. Department of Agriculture estimates that agricultural lenders will incur $15 to $19 billion of losses in the 1980s, about 10 percent of the farm debt outstanding when the decade began.[11] At the end of 1987, lenders were estimated to have already taken 75 to 85 percent of those losses. Thus, agriculture's future costs appear relatively low.[12]

But that conclusion could prove too optimistic. U.S. agriculture could lose in a coming tug of war. On the one hand, government support seems likely to decline in coming years, undercuning agriculture's recovery. On the other hand, continued growth in export sales would fuel agriculture's recovery. U.S. agriculture needs rapid economic growth in developing countries because the industry's comparative advantage lies in selling large volumes at low-unit cost.

It is not clear which side of this tug of war will win. But if exports remain sluggish while government support is reduced, farm debt problems could again resurface. Thus, U.S. agriculture is extremely dependent on growth in export markets to keep its hard-won recovery going.

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11 Gregory Hanson, Richard Kodl, Gary Lucier, and Kenneth Erickson, "Farm Finance Outlook," presented at the annual U.S. Department of Agriculture Outlook Conference, Washington, D.C., December 3, 1986.

12 Much of the remaining debt adjustment cost will be borne by two lenders—the Farm Credit System and the FmHA. For a discussion of the loan problems facing these lenders, see Alan Barkema and Mark Drabenstott, "A New Era in Farm Lending: Who Will Prosper?" *Economic Review,* Federal Reserve Bank of Kansas City, June 1988, pp. 22-38.

TABLE 7
Market prices for developing-country debt
(percent of face value)

Country	January 1987	July 1987	December 1987	July 1988
Argentina	62-65	46-49	35-38	22-25
Brazil	74-77	58-61	45-48	50-52
Chile	65-68	68-70	60-63	57-60
Colombia	—	81-83	67-72	60-65
Ecuador	63-66	45-47	34-38	23-27
Mexico	54-57	55-57	51-54	50-52
Peru	16-19	10-12	2-7	5-8
Venezuela	72-74	70-72	49-52	53-55

Source: LDC *Loan Monitor,* Shearson Lehman Huaon, Inc., July 1988.

Latin America's future debt adjustment costs are much bigger and more uncertain. One market measurement of unrealized losses is the discount attached to Latin American loans. As listed in Table 7, loans in various Latin countries are currently selling at discounts ranging from one-third to more than two-thirds. These secondary markets are thinly traded, and thus provide an imperfect estimate of eventual losses. Nevertheless, the markets do point to future losses of great magnitude.

Smooth debt adjustment in the future depends upon the performance of the Latin economies. The usefulness of debt-equity swaps as a vehicle for adjustment, for example, is limited by the willingness of lenders and other investors to accept equity positions in Latin America. The value of equity positions will depend, in turn, on the likely returns to those equity positions. Economic performance, therefore, becomes the linchpin of both U.S. agricultural and Latin American recovery.

A sound policy package

A sound policy package for the mutual benefit of U.S. agriculture and Latin America has macroeconomic, trade, and agricultural policy elements. Together, the proper elements should combine to lower interest rates, stimulate economic growth, and encourage trade. The United states plays a key role in shaping the package, but coordination among many nations will be necessary in putting sound policy in place.

Macroeconomic policy. The essential starting point for both U.S. agriculture and Latin America is macroeconomic policy. Macroeconomic policy imbalances have contributed significantly to the debt problems, and greater policy balance is a necessary condition for improvement.

U.S. federal budget deficits have been an important macroeconomic policy element in the U.S. farm and Latin debt problems. The high deficits are generally thought to have been harmful to U.S. agriculture and to have had mixed effects in Latin America. The deficits have raised real interest rates in the United States and elsewhere, harming borrowers in U.S. agriculture and Latin America. By stimulating the U.S. economy, however, the deficits did cause U.S.

imports to rise, a factor helpful to Latin America. But the deficits were also responsible for a huge capital inflow into the United States that redirected capital away from other possible uses in the developing world.

Another element is more stimulative fiscal policy in other industrial nations. Unless West Germany and other European countries stimulate their economies, budget cuts in the United States will only weaken the world economy, making it even more difficult for Latin debtor nations to export goods and services.

Numerous benefits would accompany these moves to greater fiscal policy balance within the United States and among industrial countries. Real interest rates would decline. That would ease Latin debt service while stimulating economic growth in Latin countries. The United States would need less of the world's capital supply, making more available for developing countries. A more sustainable pattern of world capital flow would stabilize financial markets and relieve market concerns. That would contribute to a more favorable climate in which to address Latin debt problems. And greater fiscal restraint in the United States would give monetary policymakers more flexibility, possibly allowing interest rates to decline with less fear of inflation. All of these outcomes would benefit both U.S. agriculture and Latin America.

Greater macroeconomic balance will encourage more stable exchange rates. The great fiscal and trade imbalances of the 1980s have led to wide currency fluctuations. Both the Latin American region and U.S. agriculture benefit from more stable, sustainable exchange rates. Because much Latin debt is denominated in dollars, a more stable dollar improves debt service management. And more stable western currencies may ease pressures on Latin currencies. Macroeconomic policy balance, by lowering interest rates and stimulating growth, would give Latin countries more stable footing to better manage their currencies.

Another important macroeconomic element is further structural adjustments in the Latin American economies. Adjustments that are needed include improved market incentives, further attention to public expenditures, and greater balance between fiscal and monetary policies. Such adjustments would maximize the benefits that will accrue to the limited investment funds available to Latin American countries.

Trade policy. Closely related to sound macroeconomic policy is open trade policy. Both U.S. agriculture and Latin America have interest in fluid trade. Without growth in trade, U.S. agriculture must put huge amounts of resources on the shelf. And Latin America is unable to service its debts without growing exports to service its debts.

A pressing need is for countries to discourage protection and pursue multilateral agreements that encourage trade. Protectionist pressures remain considerable in the United States and elsewhere, and growing protectionism will harm U.S. farmers and Latin America. The current Uruguay round of General Agreement on Tariffs and Trade negotiations is attempting to reduce trade barriers in a number of products and services. The outcome of those talks will set the tone for trade patterns in coming years. Both U.S. farmers and Latin American countries have an interest in seeing nontariff barriers, including quotas, lowered by the industrial nations.

Agricultural policy. Current agricultural policies seriously distort agricultural production and trade patterns around the world. Subsidies encourage inefficient production and even make exporters out of importers. And the policies raise food prices to consumers while also raising taxes. Still, the policies are firmly entrenched in nearly all developed countries, and the United States certainly is included in that group.

The Uruguay round provides a clear opportunity for all parties to reach a new understanding on agricultural policy. The United States has pro-

posed that all trade-distorting subsidies be eliminated in ten years. Although producing nations are not likely to subscribe to this relatively quick end to farm supports, the Uruguay round may initiate a clear trend toward more market-oriented farm policies.

What benefits does greater market orientation offer to U.S. agriculture and to Latin America? For U.S. farmers, freer agricultural policy should encourage trade while lowering U.S. production costs by more efficiently allocating resources. And it is increasingly apparent that U.S. agriculture's real comparative advantage lies in exporting large quantities at low-unit cost. That advantage derives from the United States' huge resource base and unequaled grain handling infrastructure. Only at high levels of trade do these advantages come into full play. For Latin America, a trend to freer agricultural policy would limit the quantities of subsidized farm commodities competing with Latin America's agricultural products on world markets. In brief, Latin American countries could pursue their true comparative advantage in a growing market.

A policy package of greater macroeconomic balance, open trade, and more market-oriented farm policy is in the mutual interests of U.S. agriculture and Latin America. A more favorable policy setting would lower the cost of debt adjustment for Latin America and maintain one of U.S. agriculture's most promising markets.

Conclusions

Latin America and U.S. agriculture both have had serious debt problems in the 1980s. Though seemingly dissimilar, the two problems do have some common roots. Currently, the U.S. farm debt problem is improving while the Latin debt problem lingers. Buoyed by generous government support of agriculture, U.S. farmers and lenders have been aggressive in addressing problem loans and reducing the debt burden. Adjustment has been much slower south of the border. However, while the debt burden remains large, innovative mechanisms are emerging for addressing problem loans.

Looking to the future, U.S. agriculture and Latin America have a strong mutual interest in the broad economic policy setting in which they will operate. To prosper, both U.S. agriculture and Latin America need greater macroeconomic balance, more open trade, and more market-oriented agricultural policy. Additional structural adjustment in the Latin American countries will also be needed. Such a package of broad policy elements will help determine the ultimate cost and eventual success of the many debt adjustments that must be made in Latin America during the next few years. Without stronger trade growth in Latin America and other developing regions, U.S. agriculture will face the unpleasant task of stockpiling even more of its plentiful resources.

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