

Quarterly Review

April 1999

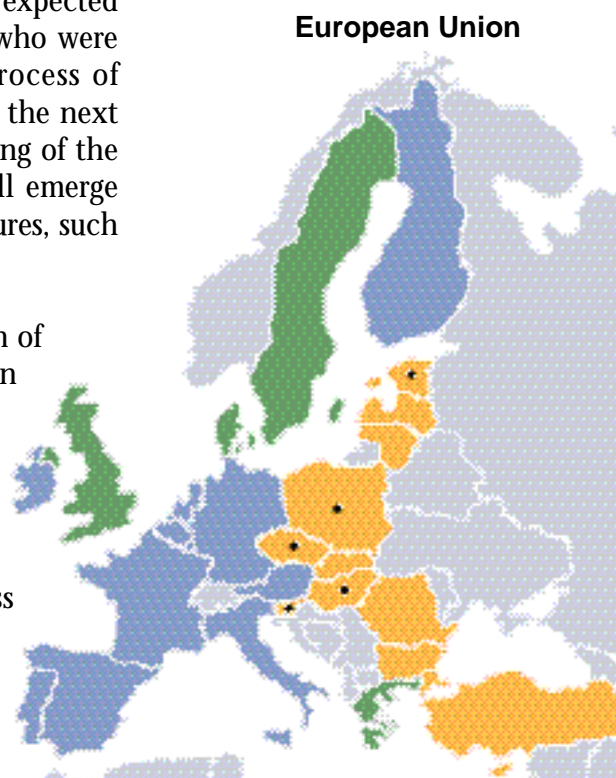
AFTER EURO — ANOTHER WAVE OF OPPORTUNITIES IN EUROPE

The economic and political landscape of Europe is changing. European Monetary Union (EMU) is a reality for 11 of the 15 members of the European Union (EU), who now share a common monetary policy anchored by a single currency. The 11 are expected to be joined by the U.K., Sweden, Denmark, and Greece (who were not part of the first round) as early as 2001. But the process of European financial integration is really just beginning. Over the next years, we expect to see a significant broadening and deepening of the European capital market. New investment opportunities will emerge as more issuers enter the market and different security structures, such as asset-backed securities, become commonplace.

Another set of opportunities will be created by the expansion of the EU beyond the original 15 members of the old European Community. The list of anticipated new members reaches beyond the confines of “Western Europe.” In fact, the members of the EU are committed to the belief that the economic success and political stability of their region are dependent on the integration of several former Soviet Bloc countries into the community. Free access to the business opportunities and growing retail markets there, as well as administrative oversight of their reform programs, are motivating the push to enlarge the EU.

The New Players

Five former members of the Warsaw Pact are considered the most qualified for membership and could participate in the union within the next three to four years. They are Hungary, Poland, Estonia, Slovenia, and the Czech Republic. A number of other countries, both former Western and Eastern nations, have association agreements with the EU and hope to be



- EMU participants
- Other EU members (not yet in EMU)
- Association agreements with EU
- Likely to join EU in 2002-2003

Source: Payden & Rygel

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Before joining, countries must work to implement EU legislation that includes compliance with literally thousands of regulatory issues set forth by the European Commission.

From an investor’s point of view, Hungary, Poland, and the Czech Republic are the three most interesting candidates for inclusion in the EU.

considered for membership later in the next decade. These states include Bulgaria, Cyprus, Latvia, Lithuania, Malta, Slovakia, and Turkey.

Before joining, these countries must work to implement EU legislation that includes compliance with literally thousands of regulatory issues set forth by the European Commission. At the same time, members of the EU have decided that any expansion of the union beyond the current membership must be preceded by some internal institutional reforms. Among the issues to be worked out are the size of the commission, the system of voting within the commission, a reform of agricultural policy, and agreement of plans to encourage employment growth. In addition, the EU budget for 2000-2006 must be agreed upon. The budget negotiations are critical, as they will determine how any enlargement of the union will be financed.

It was initially hoped that the questions related to the union’s financial framework would be resolved in March of this year. This timetable looks increasingly unlikely due to the resignation of the 20 European Commissioners amid accusations of widespread mismanagement and corruption within the oversight organization. The good news is that applicant countries are fully engaged in readying their domestic institutions to take on the EU’s body of commitments (known as the “acquis”). When the process gets back on track, membership is not likely to be delayed.

The Ones to Watch

Hungary, Poland, and the Czech Republic are three of the most interesting candidates from an investor’s point of view. All three are on the fast track to EU

January 1972
U.K., Ireland, Denmark, and Norway sign treaties of accession, effective January 1973; but September referendum in Norway rejects membership

December 1969
Summit in The Hague opens door for European Community enlargement

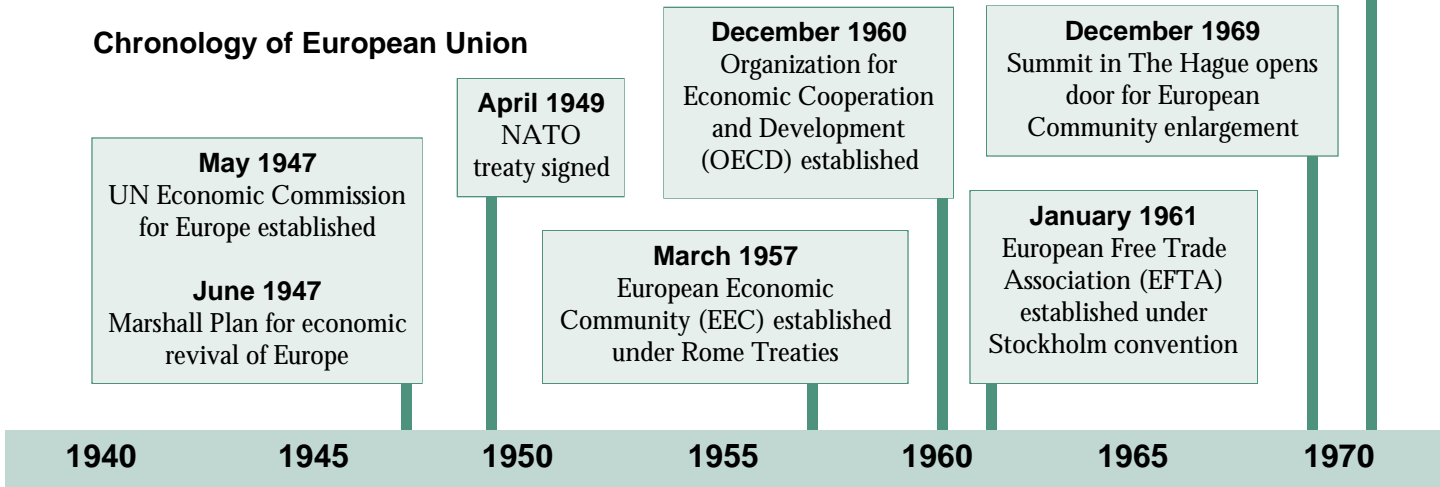
December 1960
Organization for Economic Cooperation and Development (OECD) established

April 1949
NATO treaty signed

March 1957
European Economic Community (EEC) established under Rome Treaties

January 1961
European Free Trade Association (EFTA) established under Stockholm convention

Chronology of European Union



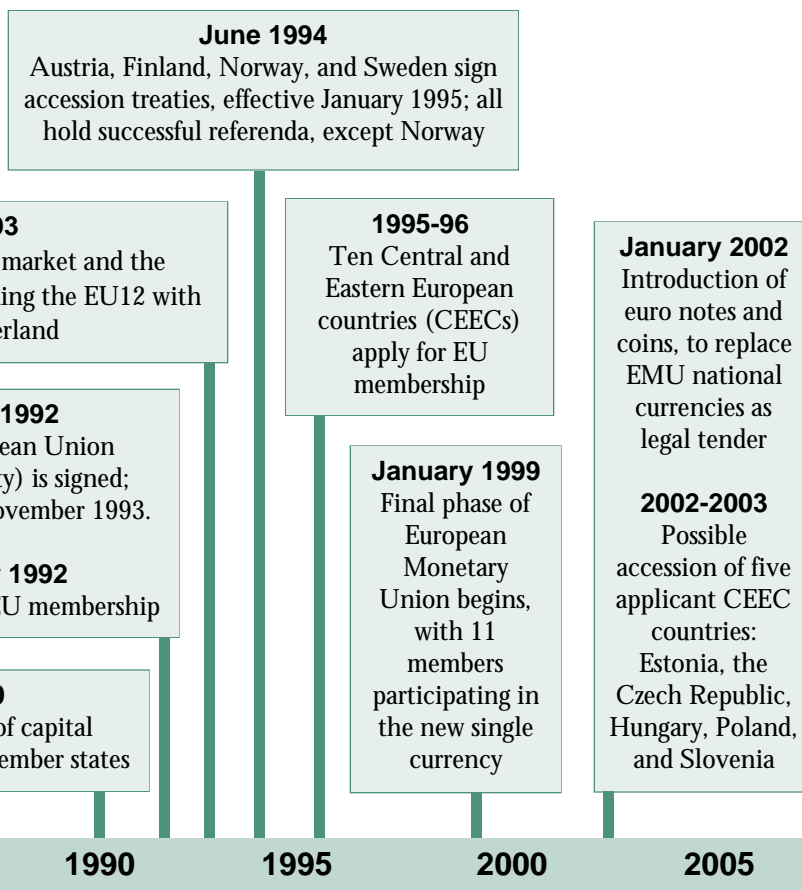
admission, with membership expected by 2003, at the latest, and participation in European Monetary Union two years later. Closer political ties, as evidenced by these countries' formal acceptance into the NATO defense alliance last month, already precede integration into the monetary system.

Each of these countries is already undergoing rapid economic reform after 40 years under a nonmarket economic system. The fact that last year's collapse of the Russian financial system had only a minor effect on their economies is evidence of the progress that has been achieved in redirecting their focus to the West. Throughout the crisis, policy makers were able to keep their respective currencies stable. Perhaps surprisingly, their economic growth remained close to the levels anticipated prior to the crisis. But with 70% of their exports going to Europe (compared with only 7% to Russia), economic prospects in these states are more dependent on Germany and France than any country to the east.

How They Measure Up

All statistics are calendar year 1998 forecasts	European Union	Czech Republic	Hungary	Poland
Real GDP growth (%)	2.4%	2.5%	5.5%	5.0%
Consumer price inflation (avg%)	1.5%	8.0%	15.0%	11.0%
Unemployment	10.1%	6.0%	9.1%	10.4%
Current-account balance (\$ bn)	100.0	-1.8	-1.7	-5.5
General government balance (% of GDP)	2.2%	0.3%	-4.5%	0.0%

Source: EIU, Dresdner Bank



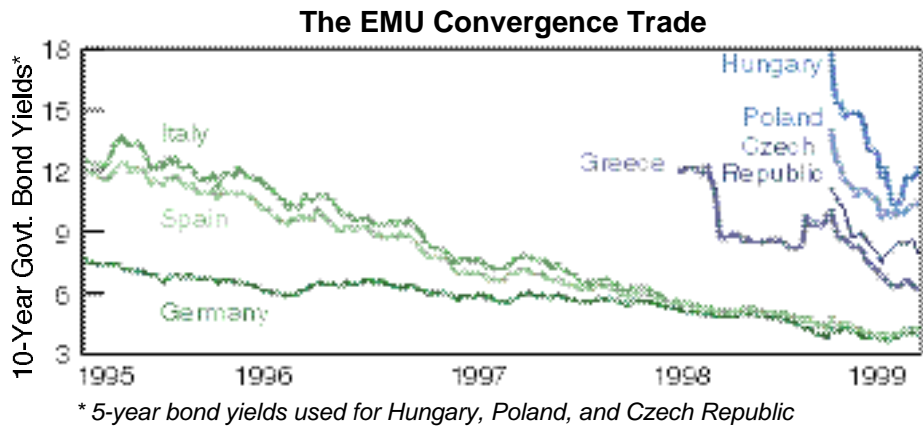
With the aim of attracting foreign capital and eventual membership in the EU, economic policy in these countries is focused on further privatization of large enterprises, the gradual reduction of inflation, maintaining stable fiscal and current account balances, and the deregulation of foreign exchange. This is creating opportunities in the small but growing fixed-income markets in the region. Each country has a small local-currency bond market where corporate as well as government issues are traded. While the opportunity for foreigners to participate in the capital markets of these states is currently limited by the small size of the bond market, the markets are likely to expand significantly over the coming years.

Investment Implications of the Road to EU Membership

As membership becomes increasingly likely, the candidates' domestic interest rates will start to converge quickly to the EU average, creating a significant capital gain opportunity for bond investors.

Why is the path to membership in the EU so important from an investor's perspective? As membership becomes increasingly likely, the candidates' domestic interest rates will start to converge quickly to the EU average, creating a significant capital gain opportunity for bond investors.

Investors in Italian and Spanish bonds benefited from this convergence as the initial process of financial integration got under way. At the beginning of 1995, Spanish and Italian government bonds were yielding a weighty 6.0% more than their German equivalents. Over the next three years, as participation in the final round of EMU became increasingly likely, this spread narrowed. At the beginning of this year, when the euro was finally launched, the spread was under 0.3%. For holders of 10-year bonds, the spread convergence resulted in an additional return of 7.0% per annum over the four-year holding period.



The performance of Greek government bonds provides a more recent example of how membership in the exclusive EMU club can provide a significant investment opportunity. Prior to Greece's participation

in EMU in March of last year, Greek 10-year bonds traded at a yield spread of 700 basis points to the German 10-year benchmark. Currently this spread is 200 basis points. This spread tightening generated an additional 25.0% return to investors over the 12-month period.

Given this experience, knowledgeable investors are eager to buy the bonds of potential new entrants into the European financial system in order to maximize potential gains. Policy makers are taking advantage of this interest in their markets to increase issuance and liquidity and remove any barriers for foreign investors that currently exist.

Only the Beginning

Despite the common misperception that the start of EMU last January marked the end of investment opportunities in European bonds, we think just the opposite. The financing of private as well as public enterprise is shifting from traditional bank lending to equity and bond issuance in the capital markets. The resulting offerings in nongovernment bond sectors will help diversify European fixed-income portfolios and enhance returns in the coming years. Allocations to future EU member countries will also complement European holdings, with significant prospects for added capital gains.

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HOW MUCH DO FACTORS OTHER THAN ECONOMIC FUNDAMENTALS MATTER TO INTEREST RATES?

While it is important to understand economic fundamentals in making investment decisions, factors other than traditional macroeconomic variable can influence interest rates.

Over the past year, fears that Japan would stop buying U.S. bonds as the yen appreciated caused U.S. yields to rise, at least temporarily.

If we assume that demand of government debt remains steady, the shrinking supply of bonds should lower yields and boost bond prices.

In past issues of our *Quarterly Review*, we have stressed the importance of understanding economic fundamentals in making investment decisions. For instance, prospects for economic growth help us determine which corporate sectors are poised to do well. Similarly, inflation expectations are a key factor in our analysis of the movement of interest rates overall. Rising inflation erodes the value of money, prompting investors to demand higher nominal yields, while low inflation keeps nominal yields low. Inflation also impacts the shape of the yield curve. With inflation low and relatively stable, the risk premium that investors demand to hold longer- rather than shorter-dated securities declines. So today not only are interest rates low (the 30-year bond yield is about 5.5%, compared with 9% a decade ago), but the spread between 2- and 30-year yields is only 50 basis points (compared with about 250 basis points 10 years ago.)

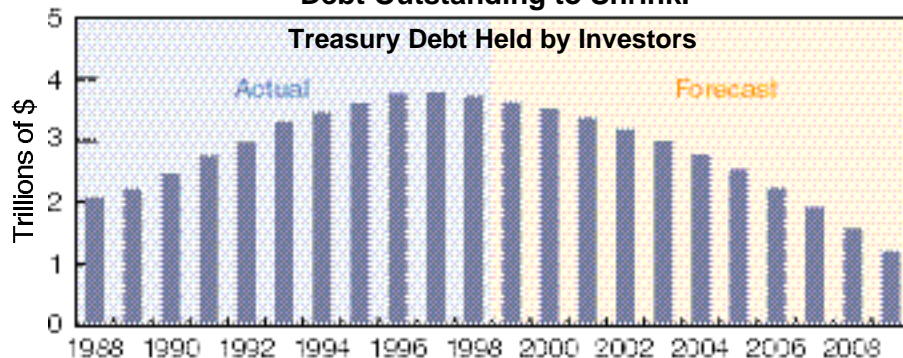
But does fundamental analysis tell the whole story, or do other factors play a significant role? For instance, over the past year, fears that Japan would stop buying U.S. bonds as the yen appreciated caused U.S. yields to rise, at least temporarily. In the following pages we will examine some factors other than traditional macroeconomic variables that influence the supply and demand of bonds and the level of interest rates.

The Supply Side — Improved Federal Budget Position Means Less Issuance

Last year, the U.S. Treasury's net new issuance of bonds decreased by more than \$100 billion compared with 1997, and net new issuance is expected to decline another \$100 billion this year. This decrease in supply is equivalent to having a large buyer coming into the auction process each month and buying \$9 billion of bonds. And if the federal budget surplus continues to grow according to the Congressional Budget Office's (CBO) projections, U.S. Treasury debt held by the public will decrease from 44% of GDP today to only 9% of GDP in 2009. If we assume that demand of government debt remains steady, the shrinking supply of bonds should lower yields and boost bond prices.

There are a number of reasons to be optimistic that the strong fiscal performance of the past few years will continue. While the strong growth of the economy has certainly contributed to a cyclical improvement in the government's fiscal position, more fundamental factors also lie behind the recent surpluses. Legislated spending caps

The Budget Surplus Will Allow the Amount of Treasury Debt Outstanding to Shrink.



Source: Flow of Funds Forecast: Congressional Budget Office

have played a significant role in curbing spending, and these caps will remain in place through 2002. The CBO projects that the federal surplus will grow to \$381 billion by 2009 under current policies and could reach \$514 billion if discretionary spending is frozen after 2002.

In making its projections, the CBO has assumed only a modest 2.3% growth rate for the economy. The growth assumption is important because of the sensitivity of any budget forecast to cyclical factors. Last year, for example, the government underestimated its budget surplus by more than \$70 billion, largely because the economy and the stock market surprised on the upside. Because the CBO has used a modest economic growth assumption in its forecast, the projected surplus does not need to be discounted for an overestimate of the likely economic growth rate.

Yet another concern about the CBO's estimate also seems to be exaggerated. In 1998 government receipts were pushed up by capital gains taxes generated by the booming stock market. Some observers have wondered whether revenues will not slip badly in the event of a stock market decline. Yet it is unclear how the value of government receipts might be affected by a market correction. A sharp fall in equity prices could certainly lead to a large number of sales as investors look to protect the value of their holdings. Many of these sales would probably realize significant capital gains, however, as the stock market has risen strongly in recent years. Tax receipts might actually rise in this scenario; at the least, any negative impact of a fall in stock prices would probably be seen only after a lag.

The Demand Side — Foreign Ownership in Perspective

Periodically the bond market is swept by fears that Japanese investors will either stop buying U.S. securities or even sell off a portion of

The CBO projects that the federal surplus will grow to \$381 billion by 2009, which could reduce the supply of Treasury bonds issued.

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their holdings. Japanese officials periodically try to talk up the value of the yen, raising fears of reduced Japanese participation in our market. In addition, accounting considerations inevitably introduce some distortions in the market at the end of the Japanese fiscal year (March 31). But the significance of these factors must be kept in perspective.

First, the published data show that foreigners currently own 38% of privately held U.S. Treasury debt, with Japanese accounting for 8% of all private holdings. These statistics might, however, be a bit misleading. The data show that U.K. investors account for roughly 8% of the Treasury debt held by private foreigners. Since the “nationality of foreign holder” is assigned to the location of the counterparty to the transaction, if a Japanese resident makes a transaction through his brokerage account in London, the transaction is reported as a holding by a U.K. investor. Nevertheless, the data suggest that Japanese demand is only one among many components of foreign demand for U.S. Treasury securities.

Major Foreign Holders of Treasury Securities

Country	As % of Foreign Total	As % of Total Private
Japan	21%	8%
United Kingdom	20	8
Germany	8	3
Mainland China	4	1
Hong Kong	4	1
OPEC	3	1
Singapore	3	1
Spain	3	1
Mexico	3	1
Switzerland	3	1
Taiwan	3	1
France	2	1
Belgium	2	1
Netherlands	2	1
Canada	1	1
Other	<u>18</u>	<u>7</u>
	100%	38%

Source: U.S. Treasury Dept.

An indication of this is provided by the behavior of the bond market over the past year. Available data indicate that the Japanese investors were net sellers of long-term U.S. Treasuries in the second half of 1998 as the price of U.S. bonds rallied. The data show that Japanese private investors owned \$277.6 billion in U.S. Treasury securities in December 1997. Through the early months of 1998 they were net purchasers, and their holdings reached \$297 billion by spring. Over the remainder of the year the Japanese were net sellers, and their total investments fell to \$276.1 billion by year-end. It was precisely during the time that Japanese holders were reducing their positions that the U.S. Treasury market enjoyed a strong rally. The flight-to-quality triggered by the Russian bond default proved to be the most important factor behind the behavior of Treasury bond prices.

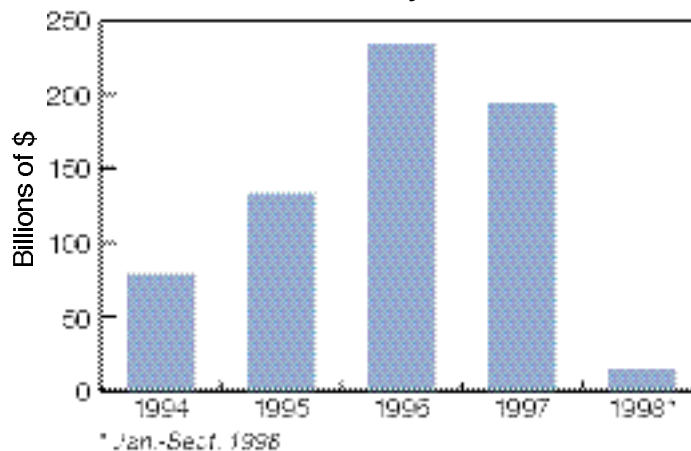
Whither the Equilibrium

Fundamental economic forces best explain both the level and shape of the U.S. Treasury curve over longer time periods. From a theoretical perspective, both the overall level and pattern of interest rates was first explained by Irving Fisher, who argued that the yield curve reflects the market’s expectations of future interest rates. Temporary anomalies in supply and demand factors—which we have

been calling “other factors”—also play a role, however. But while these other factors cannot be ignored, the time period over which they hold sway must be borne in mind. Our investment outlook for 1999, a medium-term outlook, expects interest rates to remain low on a historical basis because, for fundamental reasons, inflation is expected to remain low throughout the year. At the same time we also expect interest rates to move up and down for short periods of time due to some of the other factors we have discussed.

By understanding which factors are creating short-run opportunities rather than leading to longer-run outcomes, a savvy investor can take advantage of the anomalies these other factors may create. For example, if one of these other factors causes the market to trade off relative to a medium-term forecast based on economic fundamentals, then bonds could be bought cheaply. Rather than staying overinvested in the market, however, an investor should be ready to sell these bonds when the price, or yield, approaches fair value over the medium term. In the end, markets will eventually adjust to bring fundamental forces into equilibrium. ■

Although Foreigners Own More than One-Third of Outstanding U.S. Treasuries, Net Purchases Were Substantially Less Last Year



Source: Office of International Financial Analysis

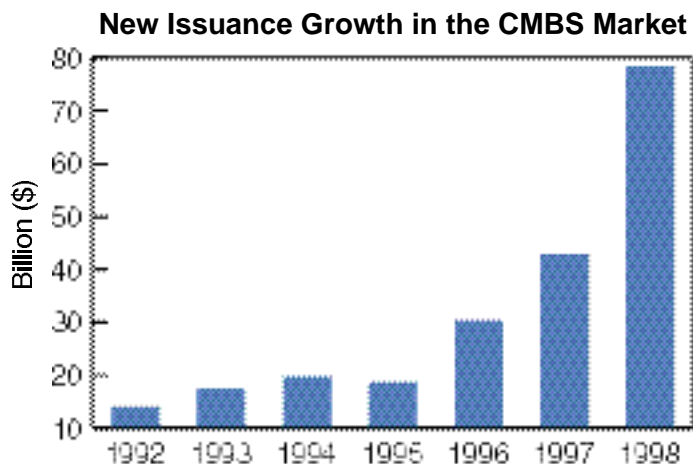
COMMERCIAL MORTGAGE-BACKED SECURITIES (CMBS)

A CMBS may be collateralized by loans made against apartments, office buildings, industrial properties, shopping malls, storage facilities, and/or hotels.

A Historical Perspective

Commercial mortgage-backed securities (CMBS) are bonds collateralized by commercial real estate loans made against a variety of property types. A CMBS may be collateralized by loans made against apartments, office buildings, industrial properties, shopping malls, storage facilities, and/or hotels.

Prior to the early 1990s the primary source of loans to these properties were savings and loans, commercial banks, and life insurance companies. The collapse of



Source: DLJ Commercial Mortgage Alert

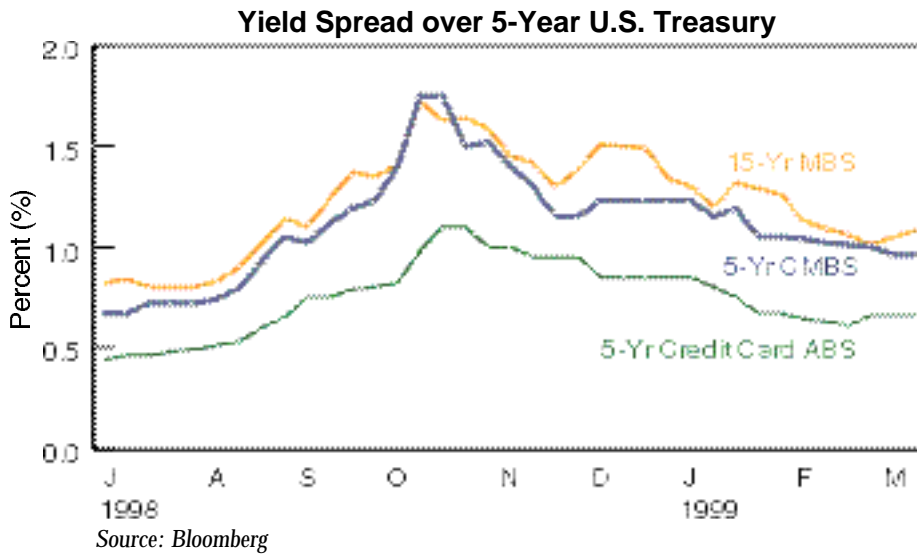
property values in the early 1990s and the problems of the savings and loan industry were the biggest contributing factors to the creation of the CMBS market. The crisis in the thrift industry led to the creation of the Resolution Trust Corporation (RTC) to facilitate the bailout of bankrupt savings and loans. The RTC's mandate was a simple one; to liquidate the assets it acquired from insolvent thrifts as quickly and efficiently as possible. As a large portion of the assets inherited by the

RTC consisted of commercial mortgage loans, the RTC turned to the CMBS market to monetize these assets. Between 1991 and 1993 the RTC issued nearly \$15 billion in multifamily and mixed property CMBS. Since then the market has continued to grow, with approximately \$80 billion in new issuance in 1998. To put this in perspective, the amount of new issuance was about the same as credit card and auto ABS issuance combined.

What Are the Opportunities in CMBS?

Although still a relatively new type of security, CMBS have gained in popularity among a variety of investors. Traditional mortgage-backed security (MBS) buyers like the prepayment protection offered by this mortgage-related vehicle. At the same time, buyers of regular corporate bonds and asset-backed securities (ABS) like the additional yield pickup afforded by CMBS. The following chart shows the yield of a 5-year AAA CMBS, a 5-year AAA credit card ABS, and a 15-year par coupon MBS that trades like a 5-year security. During most of 1998, CMBS offered a 20-to 30-basis-point yield advantage over credit-card-backed ABS. The spread to ABS

widened to almost 80 basis points in the fall. CMBS spreads have since recovered to a more reasonable level, yet they still offer a 30- to 40-basis-point pickup versus credit cards. And while the yields on straight mortgage pass-throughs appear competitive to CMBS, this simple comparison of yields ignores the fact that the CMBS sector affords prepayment protection as interest rates fall.



Types of CMBS

CMBS deals can take a number of forms. At one end of the spectrum, a deal may be backed by a single loan made to a single borrower. Only 17% of all deals in 1997 were from a single borrower, and many of these deals were done as private placements.



At the other end of the spectrum, a CMBS can be collateralized with multiple loans made to multiple borrowers, usually in the hundreds. These are the most common type of CMBS issued today and are usually referred to as conduits. They are popular among investment professionals because they offer broad diversification, not only in terms of the number of loans making up the collateral pool but also in terms of property type, geography, loan size, and loan type.

The vast majority of CMBS issued today are non-agency or private label securities.

Between these two extremes are large loan deals where loans are larger in size, but smaller in number, and fusion deals, which are a combination of large loans and a conduit. Although all three of the government’s housing-related agencies (GNMA, FNMA, and FHLMC) issue commercial mortgages, the vast majority of CMBS issued today are non-agency or private label securities.

Due to the typical senior/subordinate structure of CMBS deals, individual classes of the CMBS structure can be rated from AAA down to non-investment grade.

CMBS Credit Ratings

The majority of CMBS deals are put together by private issuers. Consequently, unlike traditional mortgage pass-throughs, neither the interest nor principal payments are guaranteed by the government. Due to the typical senior/subordinate structure of CMBS deals, however, individual classes of the CMBS structure can be rated from AAA down to non-investment grade. In a senior/subordinate structure the lower-priority classes provide credit enhancement to the senior classes. In other words, if there is a loss, the lowest-rated bond remaining in the deal takes the hit. The amount of subordination is determined in conjunction with the rating agencies to obtain the desired rating on the senior classes. Generally

Hypothetical CMBS Deal Structure

<u>Class</u>	<u>Rating</u>	<u>Description</u>	<u>Size (\$MM)</u>	<u>% Pool</u>	<u>Credit Support (%)</u>	<u>Average Life (Yr.)</u>	<u>ERISA Eligible</u>
A1	AAA	Senior	200	20	30	5.0	Yes
A2	AAA	Senior	500	50	30	9.7	Yes
B	AA	Mezzanine	50	5	25	9.9	No
C	A	Mezzanine	60	6	19	9.9	No
D	BBB	Mezzanine	60	6	13	10.0	No
E	BBB-	Mezzanine	20	2	11	11.3	No
F	BB	Subordinate	50	5	6	13.5	No
G	B	Subordinate	30	3	3	13.5	No
H	Not Rated	Subordinate	30	3	0	13.5	No

Source: Payden & Rygel

speaking, a 70%/30% mix of senior/sub weightings is used. The chart to the left illustrates a hypothetical CMBS structure.

A unique feature of the senior/sub structure is the fact that credit enhancement can actually grow over time. Since principal is paid to the senior classes first, if no losses occur, these classes will pay down faster than the mezzanine or subordinate pieces. This has the effect of increasing the

amount of non-senior classes as a percentage of the entire deal, thus providing more enhancements to the remaining senior classes.

But What about the Risk of a Recession or a Commercial Real Estate Glut?

One of the most comprehensive commercial real estate studies conducted to date was done by Mark Snyderman in 1991 and updated in 1994. For the study, he collected data from the American Council of Life Insurers (ACLI) and tracked close to 11,000 commercial loans originated by eight life insurance companies between 1972 and 1986. This is an excellent "stress test," since the time period encompasses the recession and the commercial real estate glut of the early 1990s. The study showed that 13.8% of the loans defaulted at some point in their lifetime, which translates into an average annual default rate of 0.8%.

To assess the impact of commercial loan defaults on the buyer of a CMBS deal, the likely severity of the loss must be taken into consideration. In the event of a default, a mortgage lender can foreclose and take ownership of the property or renegotiate the terms of the loan. The Snyderman study revealed that in the case when lenders chose to foreclose (46% of the time), the average loss severity was 36%. In other words, the lender lost 36 cents on each dollar he had outstanding. But when lenders chose to renegotiate terms rather than foreclose (54% of the time), the average loss severity was only about half as bad. On average, the loss severity on a defaulted loan was roughly 26%.

Prepayments have always been the nemesis of mortgage-backed securities.

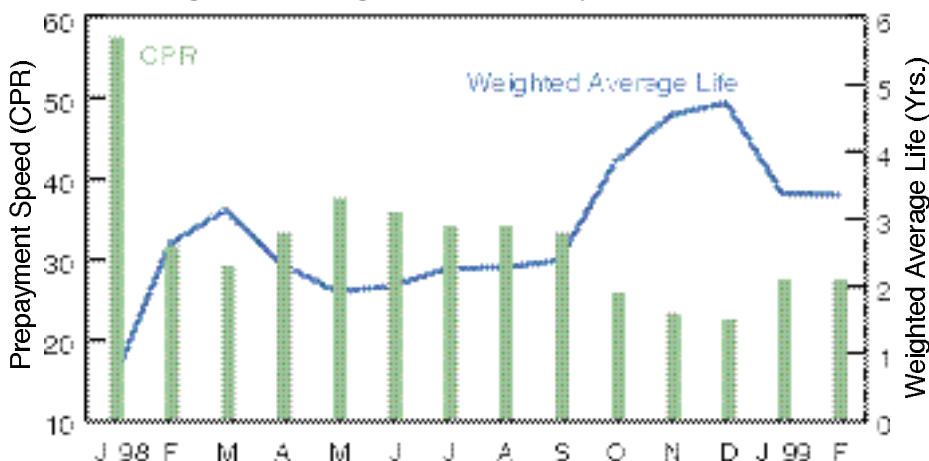
In the CMBS deal outlined above, 30% of the deal provides credit support for the AAA class. In order for the AAA class to be at risk of losing principal, 30% of the deal would have to default, with a loss severity of 100%. Recall, however, that the Snyderman study points to only a 13.8% default rate, with a loss severity of 26%. Put another way, if we assume an average loss severity of 26%, then 115% of the deal would have to default before the AAA class would suffer a principal loss. A scenario that leads to losses for holders of the AAA class seems remote even under the most difficult environments.

What about Prepayment Risk?

Prepayments have always been the nemesis of mortgage-backed securities. Fortunately, most commercial mortgages have explicit provisions that preclude borrowers from prepaying. By the terms of the loan, borrowers are either prohibited from prepaying or are given a strong financial deterrent against prepayment. As a result, CMBS have much more stable average life characteristics than traditional mortgage-backed securities. Over the course of a year, a 10-year CMBS generally becomes a 9-year CMBS, a 9-year CMBS becomes

CMBS have much more stable average life characteristics than traditional mortgage-backed securities.

Weighted Average Life Variability of a FNMA 7.5%



Source: Bloomberg

an 8-year CMBS, and so forth. Contrast that to the illustration of the weighted average life variability of a FNMA 7.5%, with changes in prepayment rates as a result of the changes in interest rates last year.

Going forward, more and more new investors will enter this market as the structure and risk of CMBS become better understood and accepted.

The Present and the Future of CMBS

Recently, CMBS have received favorable regulatory treatment that could potentially increase the demand for the security. The National Association of Insurance Commissioners (NAIC) recognizes CMBS as securities rather than real estate. This allows for a capital reserve requirement for insurance companies ranging from 0.03% to 1.0% for investment-grade securities, compared with 3.0% for commercial mortgages. In addition, bank regulators are currently considering lowering the risk-based capital weighting on AAA-rated CMBS from 100% to 20%. The Department of Labor is also continuing to study the possibility of granting an ERISA exemption to non-AAA-rated CMBS. These regulatory changes and proposed regulatory changes have not gone unnoticed and are improving the depth and liquidity of the overall CMBS market.

On July 1, 1999, Lehman Brothers will officially include CMBS as part of its Aggregate Index. According to analyst expectations, there will be an additional \$6 to \$8 billion in demand not only from new investors but also from index funds benchmarked against the Lehman Aggregate. Despite this progress, the market is still relatively young, and only about 20% of the outstanding \$1 trillion commercial real estate market has been securitized to date.

Going forward, more and more new investors will enter this market as the structure and risk of CMBS become better understood and accepted. Like the early ABS market of the late 1980s and early 1990s, the CMBS market suffered some growing pains last October, and like any new sector, it will undoubtedly experience more growing pains in the future. At the same time, CMBS offer a tremendous growth opportunity, and we believe that investors will continue to benefit as the CMBS market continues to grow and mature. ■

EMERGING MARKETS — SECURITY ANALYSIS COUNTS

There are several elements that must be considered in building a well-structured emerging-market portfolio. A critical part of the process is an analysis of the sovereign risk. That is, a careful assessment of the macroeconomic, political, and business risk variables at the country level. Out of this analysis comes a judgment about which countries offer the most attractive risk/reward opportunities.

Many emerging-market securities have complex structures, cash flows, and durations that must be considered in assessing their individual risk/reward profiles.

The next step is deciding which securities to buy or sell within the selected countries. This involves a rigorous process of security analysis that often departs from traditional methods of analyzing debt securities. Many emerging-market securities have complex structures, cash flows, and durations that must be considered in assessing their individual risk/reward profiles. In this article we highlight some aspects of emerging-market debt securities that make them quite different from most bonds in developed markets.

Brady Bonds and Collateralization

One important element that must be factored into the process of security selection in emerging-market debt is collateralization. In particular, most Brady bonds — which constitute approximately 25% of emerging-market debt — are collateralized with U.S. treasuries. This means that holding one of these bonds provides partial exposure to U.S. interest rates and high credit quality as well as exposure to the emerging-market country's interest rate and credit quality.

The term *Brady bond* refers to a series of sovereign bonds issued by several developing countries in exchange for rescheduled bank loans. Brady bonds were initially created to help Latin American countries recover from the crises resulting from over-borrowing from commercial banks after the oil shocks of the 1970s. The Brady process securitized outstanding loans into bonds, creating a more uniform and liquid market. Brady restructurings resulted in a variety of bond structures. Approximately 60% of the bonds created as a result of Brady plans were securities where the final principal payment and/or some portion of the interest payments were backed, or collateralized, by U.S. Treasury securities. Although all of the developing regions

Outstanding Brady Bonds (U.S.\$, Billions)

<u>Country</u>	<u>Total U.S.\$</u>	<u>Non U.S.\$</u>
Albania	0.3	
Argentina	20.5	0.3
Brazil	42.6	
Bulgaria	5.0	
Costa Rica	0.5	
Croatia	1.4	
Dominican Republic	0.5	
Ecuador	5.8	
Jordan	0.7	
Macedonia	0.2	
Mexico	20.8	4.6
Nigeria	2.1	
Panama	2.0	
Peru	4.9	
Philippines	3.0	
Poland	6.1	
Slovenia	0.4	0.1
Uruguay	0.8	
Venezuela	10.3	1.3
TOTAL	127.9	6.3

Source: Goldman, Sachs & Co.

(Africa, Asia, Latin America, and Eastern Europe) have implemented Brady debt restructuring programs, the largest Brady plans have occurred in Latin America.

The analysis of a collateralized emerging-market bond requires a different approach than the standard calculation of yield to maturity on a bond made up of cash flows that are the obligation of a single issuer.

The analysis of a collateralized emerging-market bond requires a different approach than the standard calculation of yield to maturity on a bond made up of cash flows that are the obligation of a single issuer. Collateralized bonds can be thought of as three distinct sets of cash flows: the collateralized principal, some collateralized interest payments, and the uncollateralized interest payments. The first two components reflect U.S. interest rates and the credit quality of the U.S. government. The third component reflects the credit quality of the emerging-market issuer. Since some of the cash flows of a collateralized bond represent the credit quality of the U.S. government, the yield to maturity of a collateralized bond is generally lower than that of a sovereign bond from the same country with no collateral.

The variety of emerging-market debt structures creates the ability to express investment views in a number of different ways.

In analyzing Brady bonds, the present value of the collateralized principal and interest components is calculated and subtracted from the present value of the bond, creating a “stripped price.” This stripped price is then used to calculate an internal rate of return (IRR) of the noncollateralized portion of the cash flows. This IRR is, in turn, referred to as the “stripped yield” of the bond. Finally, the “stripped yield spread” is the stripped yield less the interpolated U.S. Treasury yield. The stripped yield spread is the market’s view of the sovereign risk level. Only by stripping out the value of any Treasury collateral can an apples-to-apples comparison between collateralized and uncollateralized bonds be made.

The variety of emerging-market debt structures creates the ability to express investment views in a number of different ways. A pure view on sovereign risk can be executed through the purchase of uncollateralized instruments. Adding collateralized assets of a particular country, however, results in a position that is more defensive because the partial U.S. Treasury exposure lowers price volatility.

Another investment strategy takes the historical relationships between collateralized and uncollateralized assets into account. In times of market stress, the stripped yield spread of collateralized bonds tends to widen more than the spread on the same country’s eurobonds. This creates the opportunity to arbitrage the two bonds. For example, this type of trade was executed after the Russian crisis in order to take advantage of the fact that the difference between the stripped spread on the Mexican par and the spread on the Mexico ’26 eurobond had widened to a level well beyond the historical relationship and was expected to normalize.

Liquidity

A second important aspect of security selection in emerging markets is liquidity considerations.

Perhaps surprisingly, the Brady bond market is notable for its liquidity. The issue size of Brady bonds ranges from \$90 million to \$22.4 billion. The larger Brady issues are larger than the most liquid U.S. Treasury issues. Benchmark Brady bonds are so liquid that a single investor cannot move the market. The liquidity and large outstanding volumes of Brady bonds mean that large blocks can be easily executed. Bid-offer spreads on the Brazil C bonds (the most liquid asset in emerging-debt markets) are typically only about one-quarter point.

The eurobond market is also becoming quite liquid. This market has increased significantly in recent years due to both new issuance and exchanges for Brady bonds. Eurobonds (both sovereigns and corporates) make up approximately 40% of the emerging-market debt asset class. The more sophisticated frequent borrowers in the market now offer larger and more liquid eurobonds and globals, which may be issued in either dollars or other hard currencies. Mexico, Argentina, and Russia offer eurobonds with issue sizes of more than US\$ 1 billion.

Nevertheless, investors have clearly paid a liquidity premium in crisis times. During the Russia crisis, for example, many of the less liquid emerging-market bonds fell much more dramatically in price than the liquid bonds. Emerging-market corporate bonds were hit particularly hard in the aftermath of the Russian crisis. Bid-ask spreads widened to as much as 10 points for some bonds during the height of the crisis.

Duration

A third curious feature of some emerging-market bonds is their duration characteristics. Most bonds have a positive duration. In other words, their price falls when interest rates rise. In emerging markets, however, some bonds have a negative duration, meaning that their price tends to rise with a rise in interest rates.

Emerging-market bonds with negative duration tend to be floating-rate bonds trading at a low dollar price, such as certain types of Russian bonds that have a duration of negative 10. These bonds have a very high probability of default and a huge risk premium. Thus, the discount rate used in calculating the present value of future cash flows is very high. It is the extraordinarily high discount rate that is largely responsible for the counterintuitive price behavior of these bonds.

The Brady bond market is notable for its liquidity.

In emerging markets, some bonds have a negative duration, meaning that their price tends to rise with a rise in interest rates.

The following is a hypothetical example that illustrates how an increase of 1% in Treasury rates in the coupon (numerator) is far more important than the effect of raising the discount rate by 1% in the denominator.

Floating-Rate Bond

Coupon: 3-month U.S. Treasury bill + 100 basis points
 Payments: 8 annual floating-rate coupon payments due at year-end
 Principal: Full repayment of principal due after 8 years

(1) Initial Case: U.S. Rates at 6%
 Sovereign Risk Premium: 65%
 Discount Rate = 71% (6% + 65%)

$$\text{Price} = \frac{\$7}{(1.71)} + \frac{\$7}{(1.71)^2} + \dots + \frac{\$107}{(1.71)^8}$$

Price = \$11.10

(2) If U.S. Rates Rise to 7%:

$$\text{Price} = \frac{\$8}{(1.72)} + \frac{\$8}{(1.72)^2} + \dots + \frac{\$108}{(1.72)^8}$$

Price = \$12.30

Source: Payden & Rygel

Factors like structure, liquidity, and duration are key to an analysis that can take advantage of relative value opportunities.

Security Selection Counts

Emerging-market bond analysis consists of both country allocation and security selection. But security selection is complicated by a number of factors. First, there are many types of bonds with different structures, including different levels of collateral. New analytical measures are required to compare these bonds with other sovereign bonds that do not have collateral. Second, liquidity considerations must be taken into account. With the exception of extreme crisis periods, many types of sovereign bonds are surprisingly liquid. Third, some bonds may have counterintuitive duration characteristics. These factors make security selection in emerging markets more challenging but are key to an analysis that can take advantage of relative-value opportunities. ■

Acknowledgments

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Payden & Rygel Family of Funds



Fixed Income Funds

Limited Maturity Fund
Short Bond Fund
U.S. Government Fund
Investment Quality Bond Fund
Total Return Fund
High Income Fund
Emerging Markets Bond Fund

Tax Exempt Funds

Short Duration Tax Exempt Fund
Tax Exempt Bond Fund
California Municipal Income Fund

Equity Funds

Growth & Income Fund
Market Return Fund
Small Cap Growth Stock Fund
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